

MODULAR STEEL STORAGE SYSTEMS

UNIRACK

USA / USB / USM / USP / USR

PATENTED MODULAR SHELVING



MODULAR



METALSISTEMTM
SISTEMI E STRUTTURE PER IL MAGAZZINO

THE GROUP



Founded in 1968, METALSISTEM commenced its activities specialising in the design and production of machinery for the cold profiling of metals.

The experience gathered, numerous highly innovative patents resulting from intense research and development and the considerable market success of the first range of cold form zinc coated profiles quickly channelled METALSISTEM into the production of the latter of its activities.

Today the METALSISTEM Group is an articulated network of companies with its head office and main production facility in Rovereto, Italy.

The Group has consolidated its position as one of the major industries within the Material Handling Sector.

Through products and services aimed at providing complete assistance for all warehousing, product showcasing and sales outlet requirements, the companies of the METALSISTEM Group are able to offer their customers a wide range of products of the highest quality, highly competitively priced, with very rapid delivery times and a first class back up service, as well as tailor made solutions providing efficient and rational use of internal storage areas and material handling environments.

Lightness, strength and modular form, coupled with the ease of integrating and expanding already existing structures are but a few of the successful features of the METALSISTEM storage and shelving systems.

The success of the METALSISTEM Group is the result of a precise managerial choice based on research of new production technologies and continuous development and innovation of its product range.

A direction which has produced numerous international patents (testament to the uniqueness of the METALSISTEM product), continuing improvements in safety, quality and versatility.

METALSISTEM's company strategy is to offer products of the highest quality, very competitively priced, with rapid delivery times backed up by a first class service.

The numerous product lines are conceived and designed by METALSISTEM's internal Research and Development Centre, as are the profiling lines and equipment required for their manufacture.

The automated production facilities for the cold profiling of metals have enabled METALSISTEM to achieve one of the highest levels of productivity in the world, today.

Rigorous laboratory tests are conducted on the prime material entering production, and on the final product, thus ensuring the continuing evolution of efficiency and quality standards.

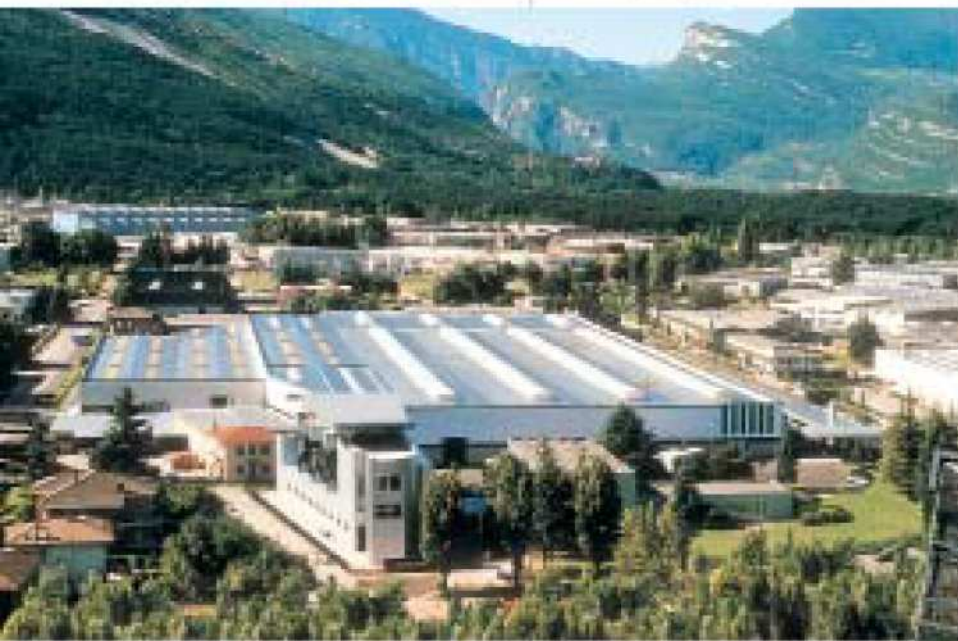
All products have elevated structural characteristics and ensure high quality standards recognised by the most important European certification bodies, such as Germany's TÜV Product Service GmbH, Austria's Ö-NORM, Rome's I.S.P.E.S.L. ACAI/CISI (Associazione Costruttori Acciaio Italiani - Sezione Costruttori Italiani di Scaffalatura Industriale), the latter of which METALSISTEM has membership, and others.

The company's ISO 9001 quality assurance system is certified by RINA.

With an annual turnover of exceeding 260 Million Euro, the METALSISTEM Group premises occupy a total area of 230.000 m², 125.000 of which are dedicated to production.

The METALSISTEM Group affiliated companies and distributors provide a world wide commercial network covering the domestic market and the industrialised nations of the world, able to satisfy the most demanding needs.

We value greatly the high level of trust that is placed in us by our customers and feel that it is proof of the quality and reliability of our products.



STANDARD SPECIFICATIONS CALCULATION AND SAFETY STANDARDS

The correct use of the product, both from the technical and design point of view indemnifies both the manufacturer and the customer in the event of improper use. Therefore, METALSISTEM recommends that customers follow its code of practice for design and utilisation of its products. It is of utmost importance that installations are assembled by skilled labour only.

METALSISTEM declines all responsibility for improper or non authorized use of the racking and its accessories.

Ref. N°:
 System: **UNIRACK USM**
 Year of Construction: **2010**
 Frame Load Capacity (u.d.l.): **4200 daN**
 Shelf Load Capacity (u.d.l.): **420 daN**
 Distance between ground and first beam level: **700mm** N° Levels: **10**
 Weight of Load Unit: **10 daN**

a. Floor slab loading.

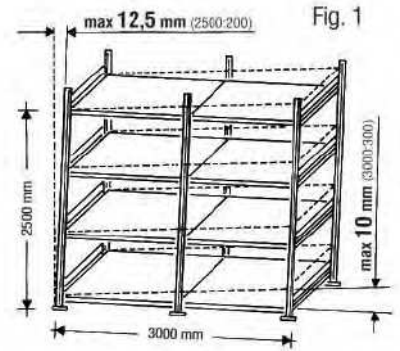
Loading capability should be checked before installation.

b. Site installation.

It is of utmost importance that installations are assembled by skilled labour only. Frames should be built in strict accordance with the assembly diagram shown in this brochure. Particular attention should be paid to a proper assembly and location of security pins.

c. Rack alignment.

Once the shelving is assembled, it is necessary to align it vertically and horizontally. The perpendicular deviation should not exceed 1/200 of the height (with a maximum of 20 mm) and correspondingly the horizontal deviation 1/300 of the bay length. See fig. 1.



d. Load bearing capacity plate.

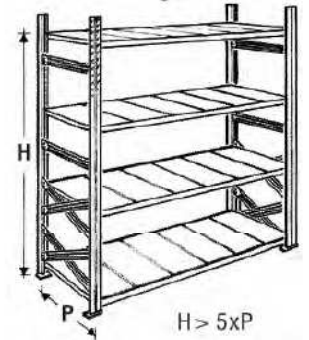
Load capacity plates should be fixed in a prominent position and show the product series, the year of construction, the maximum load per frame, per shelf and per sq.mt. (in the case of platforms and/or two-tier structures), as well as the weight of the load units, the distance from the ground to the first load level and the total number of load levels.

e. Rack safety standard.

In the case of hand loaded static shelving, if the height of the frame is over 3 metres or exceeds over 5 times its depth, the frames must be securely bolted to the floor slab using the metal base plates art.SLACC001 and fitted with wall ties or overhead ties (see fig.2). It is not allowed to use single sided shelving that exceeds over 8 times its depth, unless the frames are connected through walkways or fitted with wall ties or equivalent.



Fig. 2



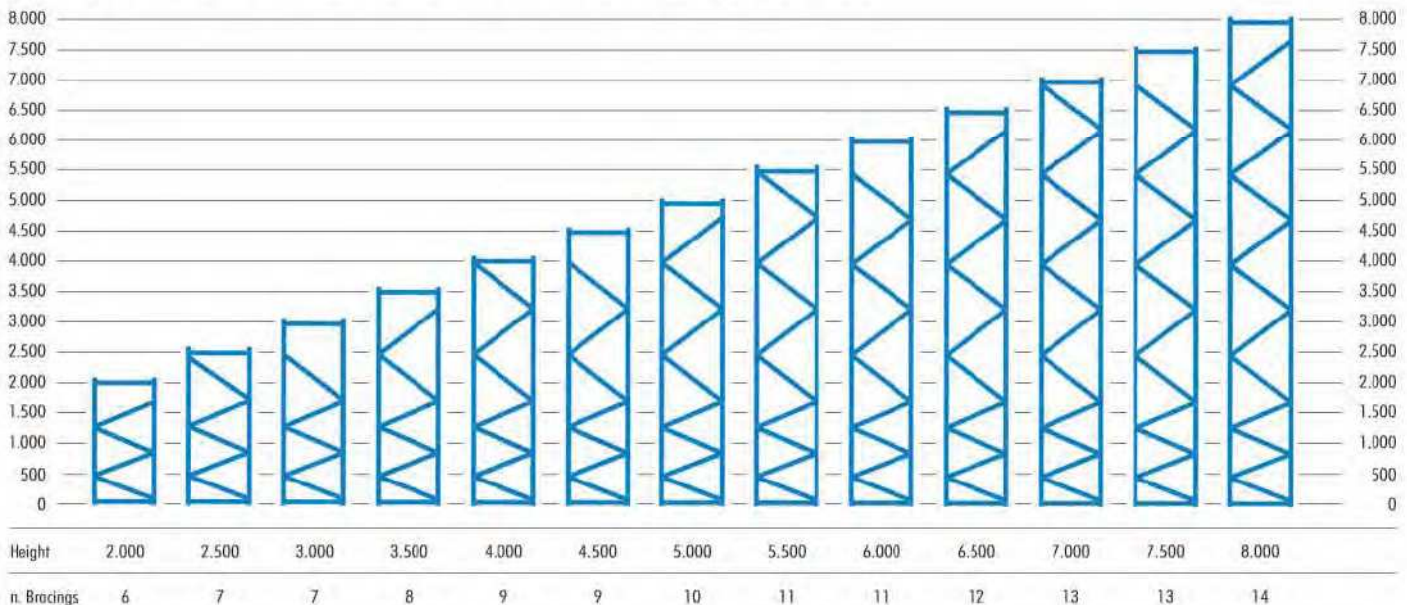
The use of cross bracings (vertical and horizontal cross bracing) is necessary in the case of rack runs with frame heights over 3 metres, with less than 4 bays or with distances of more than 700 mm in height between the load levels.

The frames must be securely bolted to the floor slab using the metal base plates art.SLACC001.

As an alternative solution to the use of cross bracings, customers may fit the shelving with wall ties or similar. This is valid only in case that the wall or the structure is adequate for that scope and provide an equal or better grade of constraint compared to cross bracing. Within seismic regions, it is not allowed at all to use any type of wall ties or similar.

For specific calculations and design, customers should contact the METALSISTEM Technical Department.

DIAGRAM FOR ASSEMBLING BRACING UNIRACK USA - USB - USM - USR- USP



f. Installation design.

UNIRACK structures are to be used as hand loaded shelving only and not as pallet racking, with forklifts, or with wheeled equipment on two-tier structures.

METALSISTEM declines all responsibility for improper or non authorized use of the shelving and its accessories.

g. Two tier structures/platforms.

Two tier structures with suspended walkways or platforms with continuous floor/decking are to be designed exclusively with USM-USR series or with the reinforced USM-R/USR-R series and must comply with all safety recommendations. The correct use of all safety components mentioned in this brochure is mandatory. Staircases built with modular UNIRACK components and integrated into shelving structures must be adequately reinforced and built with reinforced USR-uprights (article code n° USR0000/R). The frame bracing pattern of staircase frames may be interrupted at walkway level only (at a height of approx. 2.400 mm from ground), adding a horizontal frame spacer bar below and on top of the interruption. The uprights of staircase frames are to be bolted to the floor slab using two dowels M8x50 (article code n° 00040).

The maximum load bearing capacity of walkways/decking within two-tier structures and platforms is 300 daN/m² and the maximum width of walkways is 1200 mm. The max. shelf bay length is 1500 mm. The frames must be fitted with overhead ties.

For installations designed with seismic criteria, it is mandatory to use a shelf combination S3/H25-B at walkway level and to add a horizontal frame spacer bar into the frames.

h. Software reference.

The theoretical calculation is based on the EUROCODE 3, using the safety factors recommended within the F.E.M. standards.

The reference standards for the materials are the following:
- EN10204 - EN10346.

i. Calculation.

The calculation is executed with the ANSYS software and based on finite elements. Guide lines followed as basis for the calculation are those of the Italian "CISI" organization (CISI = Association of Italian Manufacturers of Steel Shelving).

l. Frame load capacity.

The frame load bearing capacities stated in this brochure are calculated in compliance with the following criteria: the first shelf level must be fitted at no more than 700 mm from the ground and the following levels at intervals not exceeding 500 mm, with a minimum of 4 interconnecting bays. Frames are to be bolted to the floor slab. The standard design and calculation referring to the UNIRACK series is valid for hand loaded shelving only, without any seismic criteria. In case of UNIRACK installations designed for MINILOAD applications or UNIRACK installations designed for seismic areas, please refer to METALSISTEM's Technical Department.

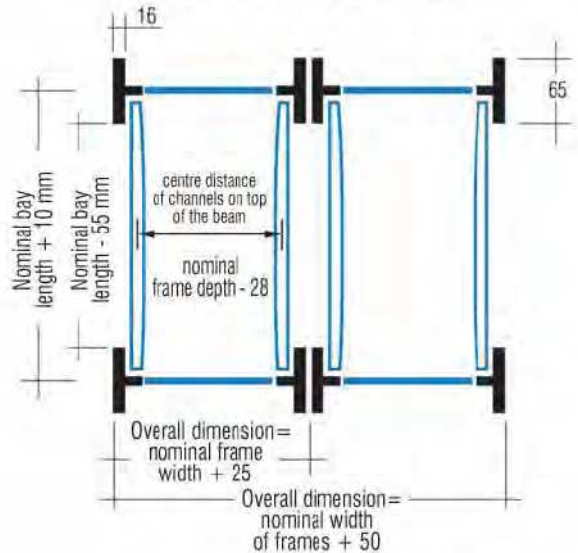
m. Shelf load bearing capacity.

Data for shelf load bearing capacities shown in the brochure are to be understood as referring to uniformly distributed loadings with a deflection equal to 1/200 of the shelf length. The beam locking pins must always be fitted.

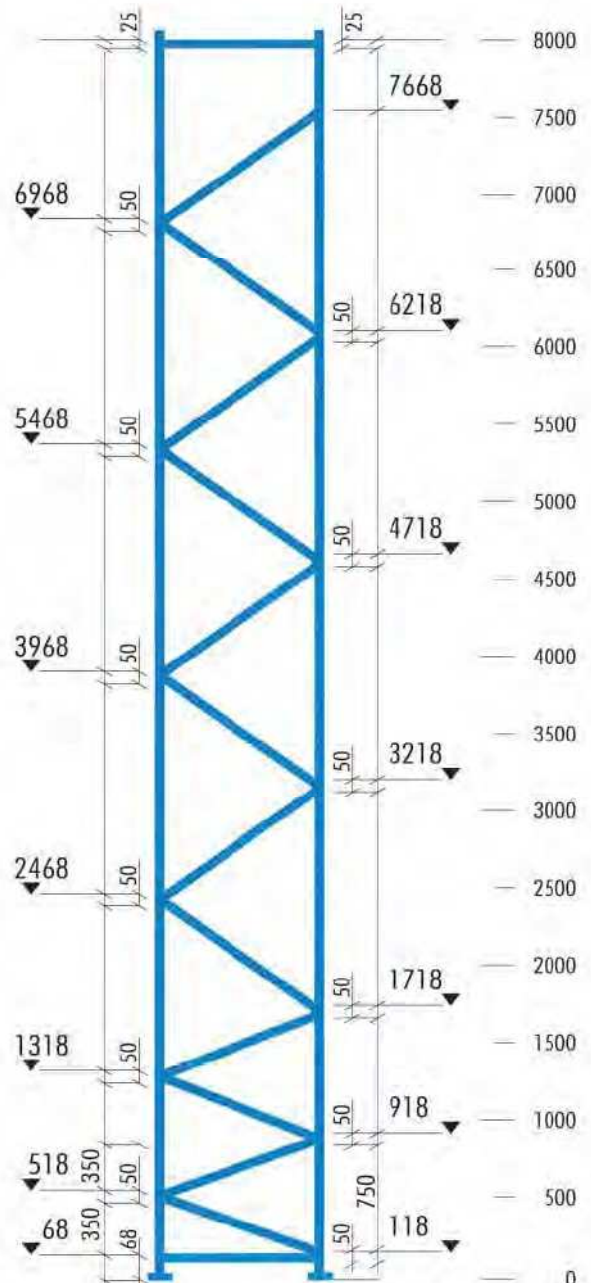
n. Custom- built applications.

The METALSISTEM Technical Department is at its customers' disposal for any specific calculation or custom-built application.

DIMENSIONS FOR THE DESIGN OF USA-USB-USM-USR SERIES



IMPORTANT: ensure the two uprights of the frame to be perfectly parallel, before tightening the bolts.



METALSISTEM reserves the right to apply technical changes to the product. Data, characteristics and dimensions given in this document are merely indicative.



THE COMPANY TODAY

METALSISTEM products are now in use in a great many installations throughout the world, and after more than 40 years production, we value greatly the high level of trust that is placed in us by our customers and feel that it is proof of the quality of our products.

Our customers are able to alter and extend their existing installations with the same components and the greatest of ease.

Product development, production and turnover is steadily increasing. Delivery and installation of even major projects can be achieved very quickly. This is possible due to the high rate of production coupled with an extensive network of distributors world-wide, extreme ease of assembly and a very rapid installation time.

The practical structural testings are verified by rigorous commissions in the field of quality and safety certification.





THE PRODUCT

The UNIRACK USA-USB-USM-USR-USP structures have been designed and implemented to meet the needs of light to medium duty storage: they are also highly suited to the construction of single, two and even three tier structures up to a height of 8 metres with frame loadings up to 4800 daN (in USR version).

The design of the various components is the result of rigorous technical testing and the highly specialised knowledge developed over years of experience in the field of metal processing.

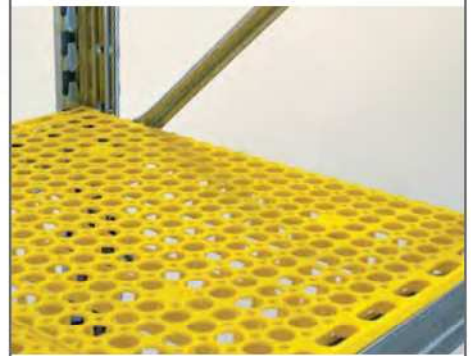
This experience has enabled METAL-SISTEM to offer innovative products of the highest quality, highly competitively priced, and to produce a highly technical solution to the most important shelving problems, such as rapid assembly, stability, low cost and load bearing capacity.

The special design allows for high load bearing from light gauge materials.

The use of high quality zinc coated steel ensures a high level of durability. The versatility of the system allows the easy use of dividers and modular containers for storage and separation of small loose parts.

The structural components of the UNIRACK systems are made from high tensile steel, certified according to EN 10204 3.1.





The safety and the quality of the product have always been a primary aim of METALSISTEM and are recognised by TÜV PRODUCT SERVICE in Munich, one of the most rigorous E.C. commissions in the field of quality and safety certification. Thanks to its attractive high-tech design UNIRACK shelving is trendy and pleasing to the eye. It can provide unique solutions for shopfitting and applications in domestic environments.



ASSEMBLY INSTRUCTIONS

Uprights and frames

The USA-USB-USM-USR frame components are interchangeable. Beams are located on the inside of the uprights (Ref.1,2). The USP series (Ref.1b) is used to locate H30 solid shelves into the vertical slots in the upright. Using steel of varying gauge, the three frame types have different load capacities:

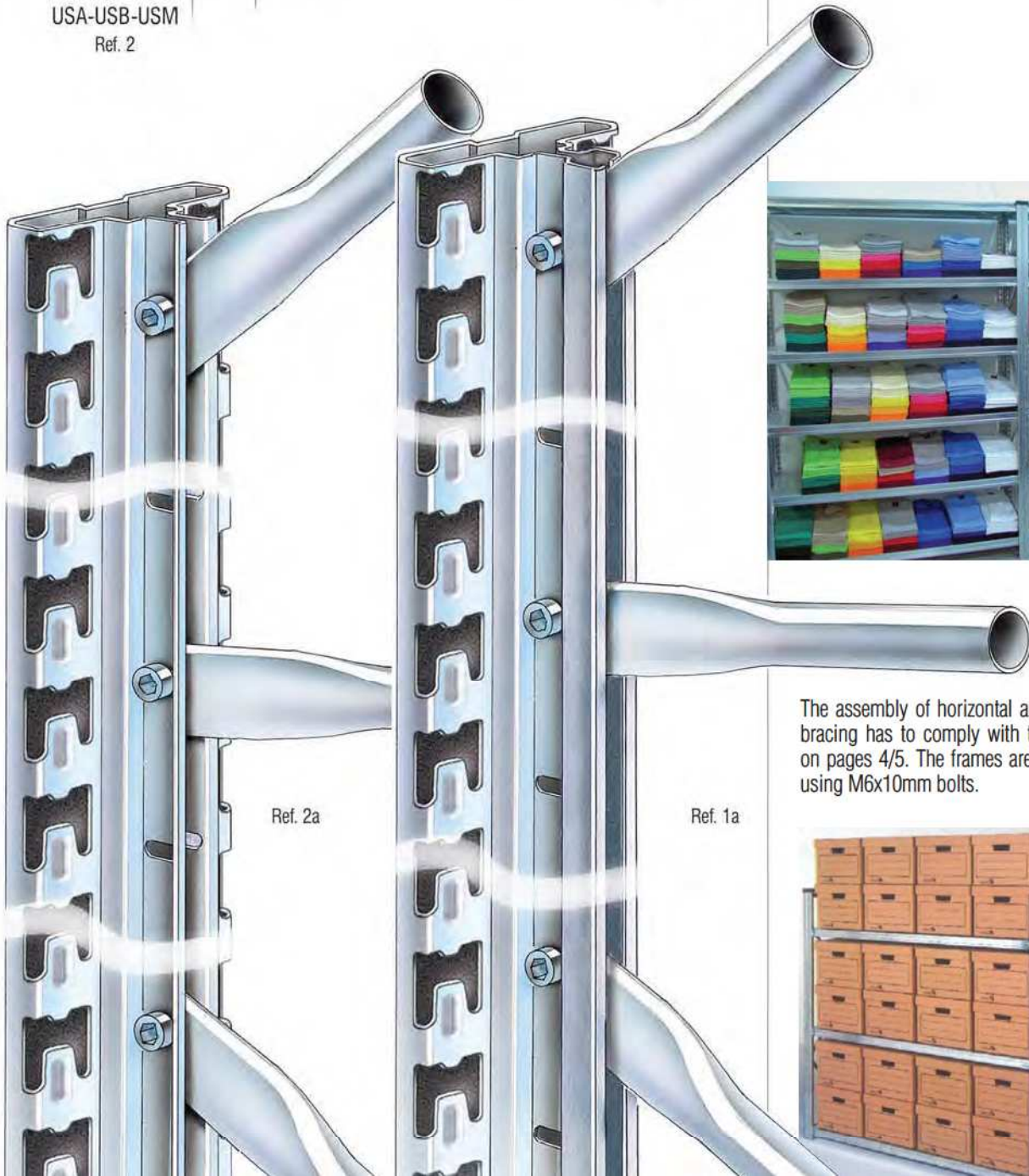
- Series USP : 2300 daN
- Series USA : 2600 daN
- Series USB : 3000 daN
- Series USM : 4200 daN
- Series USR : 4800 daN



USA-USB-USM
Ref. 2

USR
Ref. 1

USP
Ref. 1b



Ref. 2a

Ref. 1a

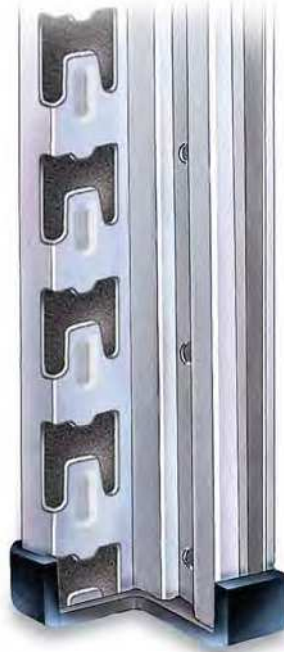
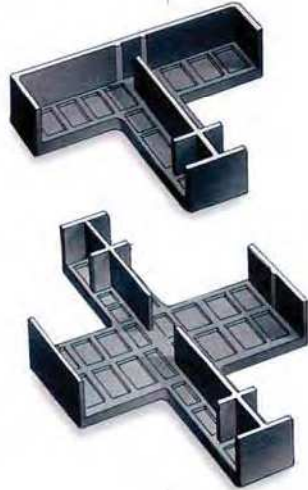
Ø18

The assembly of horizontal and diagonal bracing has to comply with the diagram on pages 4/5. The frames are assembled using M6x10mm bolts.



Base plates

Plastic base plates are fitted by pressing them onto the uprights. They are recommended only for the USA and USP series. In any case, the safety standards as per point e) on page 4 must be adhered to. Plastic bases can also be used as top caps to finish off the uprights.



Metal base plates can be fitted in two different positions:

- a) turned inwards, flush with the front face of the upright,
- b) turned outwards, both can be bolted to the floor slab.

The metal base plates are fastened to the uprights by means of 6x10mm bolts. (Ref.4)



Ref. 4a

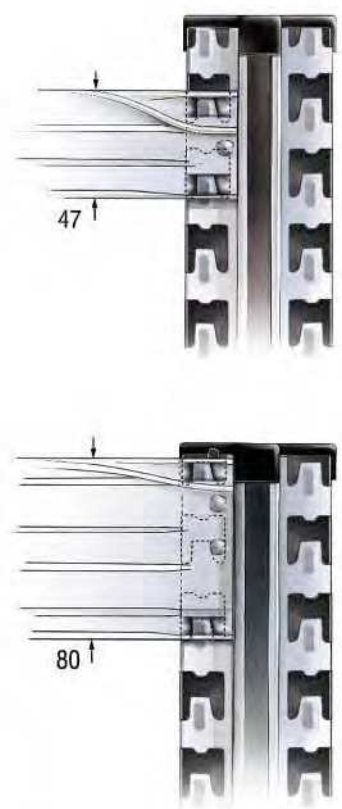
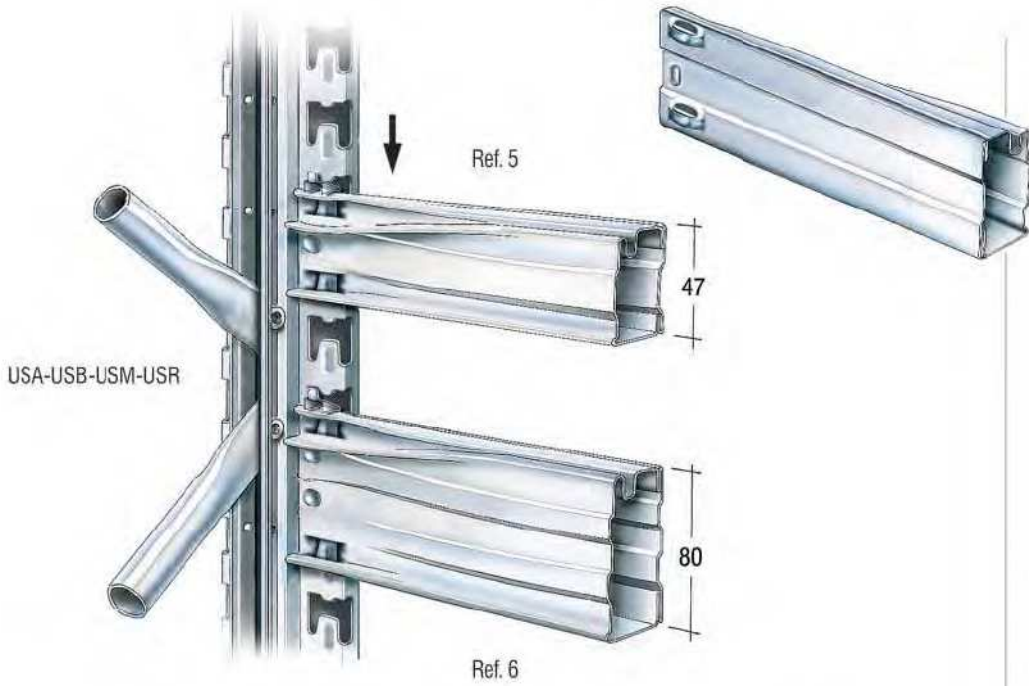


Ref. 4



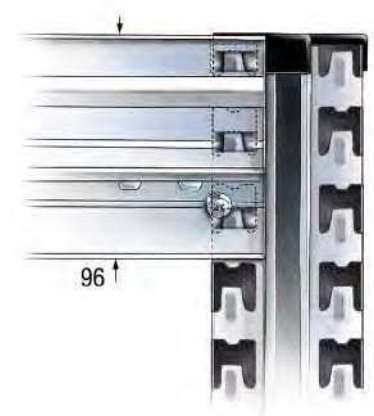
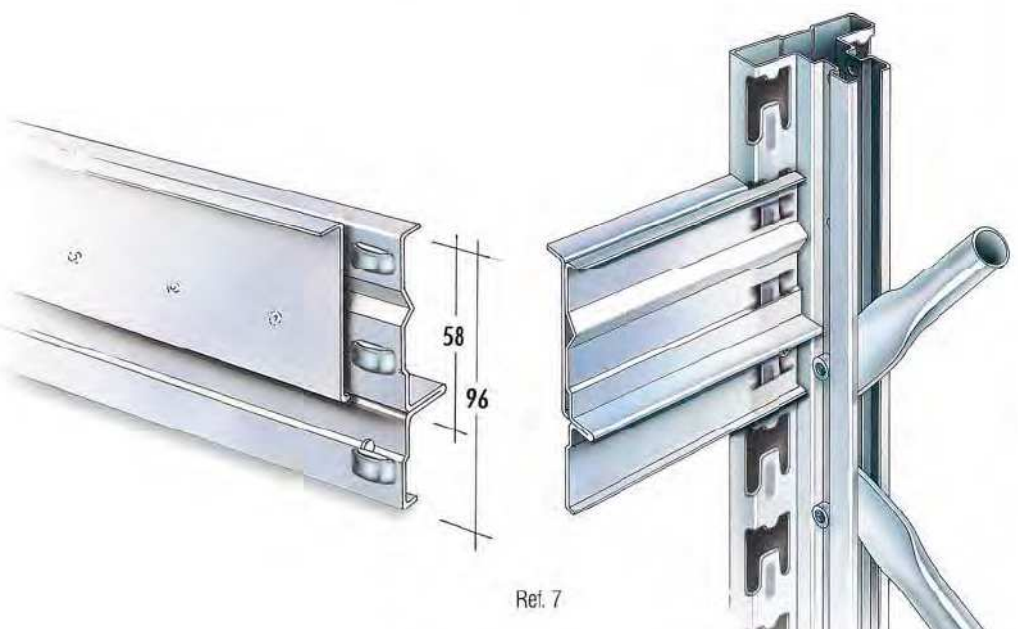
Heavy duty base plates are used for installations designed with seismic criteria or for special applications. They are fastened to the upright by 2 screws and bolted to the floor slab using 2 dowels M8x50 mm.

When using heavy duty metal base plates, the first shelf level is set at a height of 226 mm from ground. (Ref. 4a)



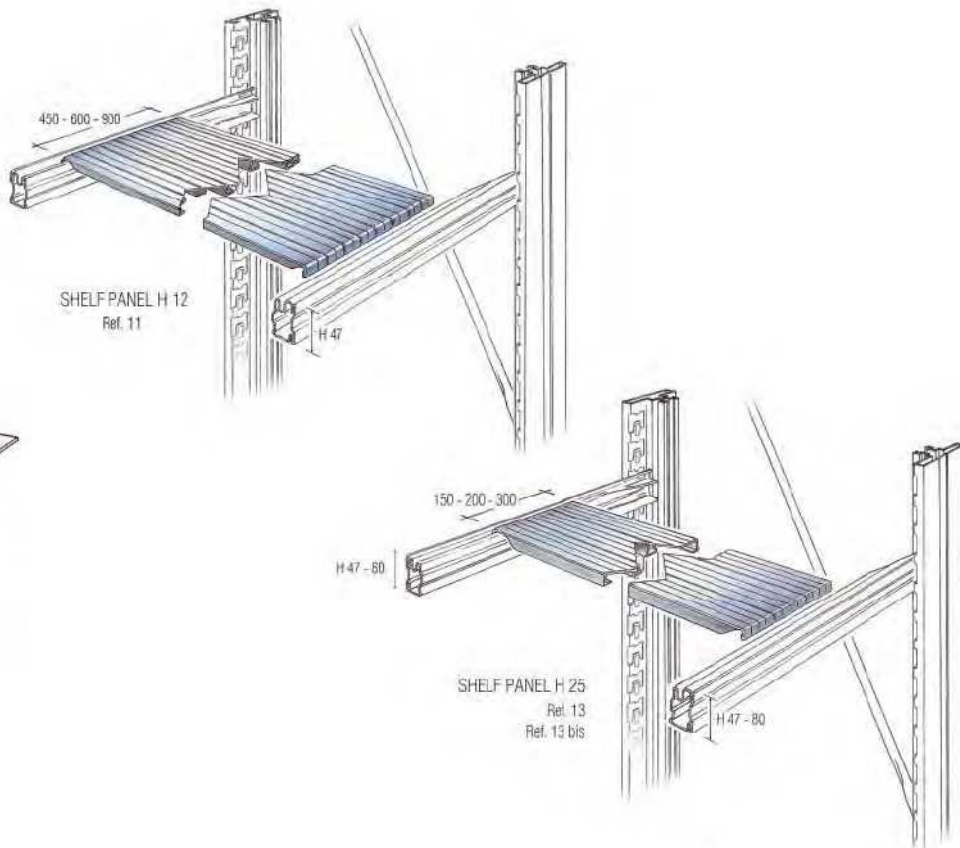
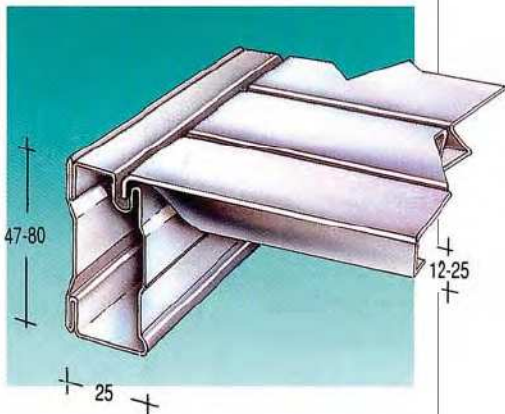
Beams

Take the frames, assembled with bracing and base plates: keep them as perpendicular as possible and fit the beam by tapping it down onto the tongues, close to the upright, with a plastic-faced hammer to avoid damage to the beam (Ref.5). The beams are compatible on the four frame types USA-USB-USM-USR except the USP series which can be fitted with the solid shelves H30 only. Each type of beam H47/80, the tubular beams and the T-section support bars, once assembled, must be secured with the respective locking pin (see page 21).



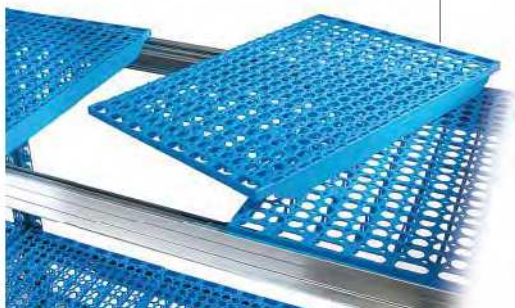
Shelves H12 and H25

Shelves of profile 12 mm, 450-600-900 mm wide, are produced in depths varying from 320 to 700 mm (Ref.11). Shelves of profile 25 mm and 300-200-150 mm wide are supplied in depths varying from 400 to 800 mm (Ref. 13/bis).



Perforated Plastic Shelf Panels

The standard range of perforated plastic shelf panels in 150-200-300mm width is made from high quality polypropylene, suitable for use within the food sector, perforated at > 50% of the shelf surface area. Available in four different colours: white, yellow, light blue and blue, for frame depths 320, 400, 500 mm.



See page 9 and page 41

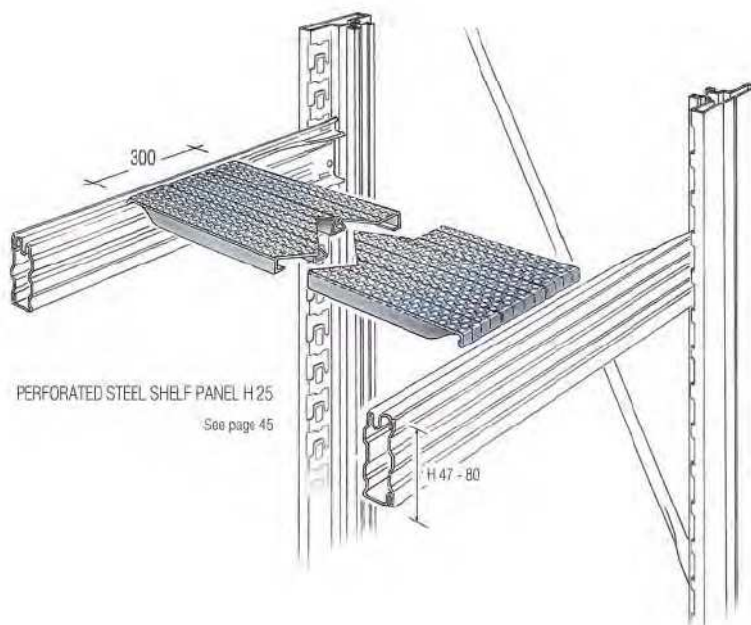
Specific FROST panels in light green colour are available for use within cooling rooms.

ECO shelf panels in black colour, made from recycled polypropylene, feature utmost cost efficiency. ECO shelf panels are not compatible with the food sector.

For correct ordering and load bearing capacities, please refer to page 41 of this brochure.

Perforated Steel Shelf Panels

Perforated shelves of profile 25 mm, 300 mm wide, perforated at 50%. For installations equipped with sprinkler systems. For correct ordering and load bearing capacities, please refer to page 45 of this brochure.



PERFORATED STEEL SHELF PANEL H 25

See page 45



Roller Shelves

Roller shelves are available to build light duty dynamic storage applications such as carton flow, using a gravity feed rear load design.

Each roller shelf unit consists of one or more inclined runways equipped with specially designed roller tracks. Merchandise is loaded in the rear of each runway and moves toward the picking station. As an item is removed from the front, the item directly behind it slides forward in place of the previous and rolls to the front, thus allowing merchandise to remain better organized and easier to find/pick. Carton flow always keeps items within reach. Inventory is easier to monitor and control since products are fully visible at all times.

METALSISTEM's carton flow is an economic, modular and functional solution based on standard components alone, allowing flow track beds to be created up to depths of 4 metres. The flow track profiles are made from certified, galvanised, high tensile steel and are manufactured in lengths ranging from 359 to 4022 mm at a cut pitch of 33 mm. Yellow rollers made from polypropylene are inserted into the tracks at varying pitches of either 33, 49.5, 66, 82.5 or 99 mm, according to the application requirements.

For more information and load bearing capacities of the rollers, please refer to page 51 of this brochure.

The support for the roller shelves is provided by frames placed at fixed intervals set by oval tubes, (the same standard components used for walkway parapet elements) thus ensuring that the beams will be aligned at a constant inclination of approximately 8° from the rear to the front side of the system.

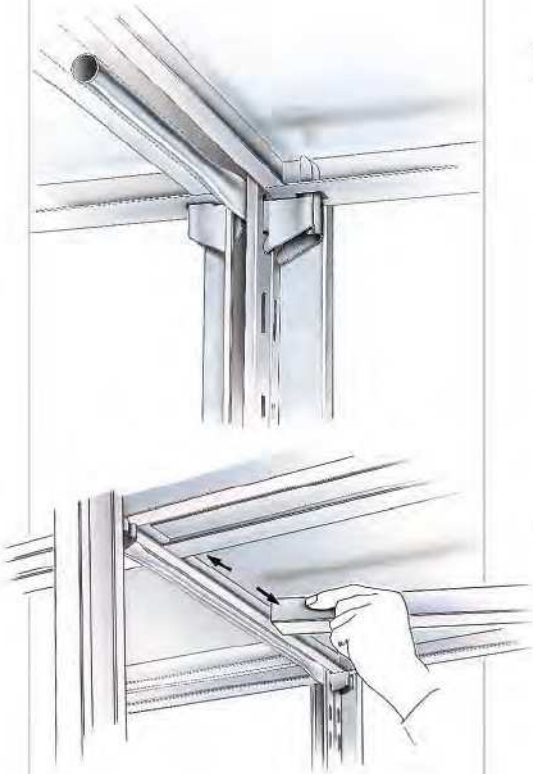
A "T"-section support bar placed at the picking side of the run provides both support for the flow tracks and an end stop for the cartons.

Restocking and picking typically offer the greatest opportunity for improving efficiency within order picking operations. With carton flow rack systems, products are automatically rotated on a first in first out basis and labour savings of up to 75% can be realized almost immediately. Because items are picked from the front and stocked from the rear, both functions can be performed without interference and with minimized travel.



Solid shelves

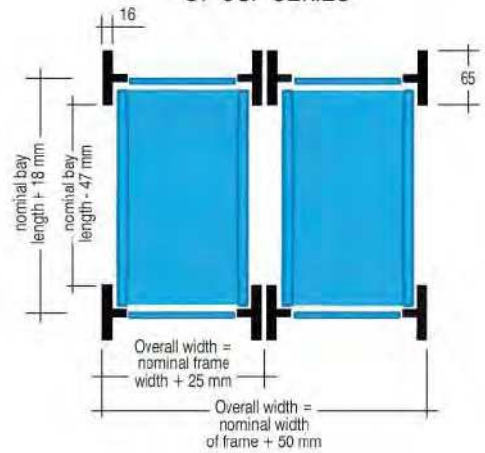
The solid shelves H30 mm are located on four shelf clips as shown below. Shelf levels are adjustable in 50 mm increments.



Ref. 14



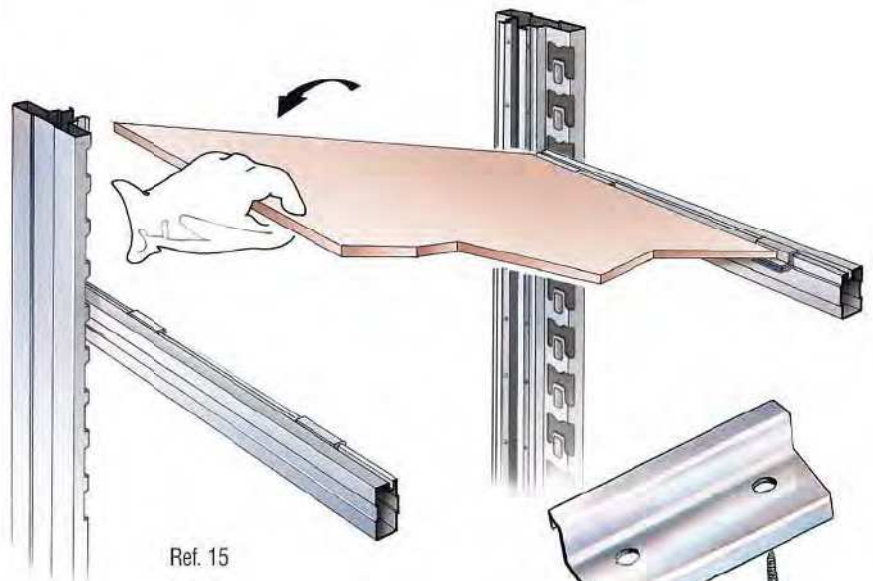
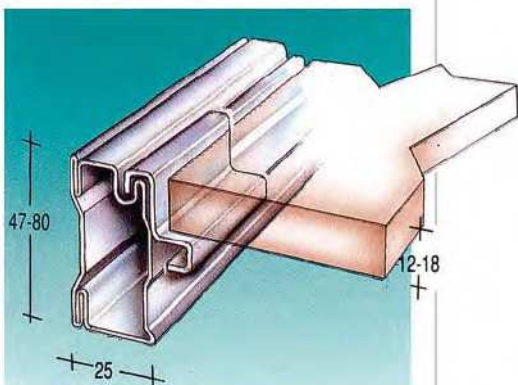
DIMENSIONS FOR THE DESIGN OF USP SERIES



Solid shelves H30 mm can be used on uprights of the USP series only. It is possible to add two reinforcers to increase the load capacity of the shelf (Ref.14). Reinforcers must be located against the two edges of the shelf.

Chipboard shelves

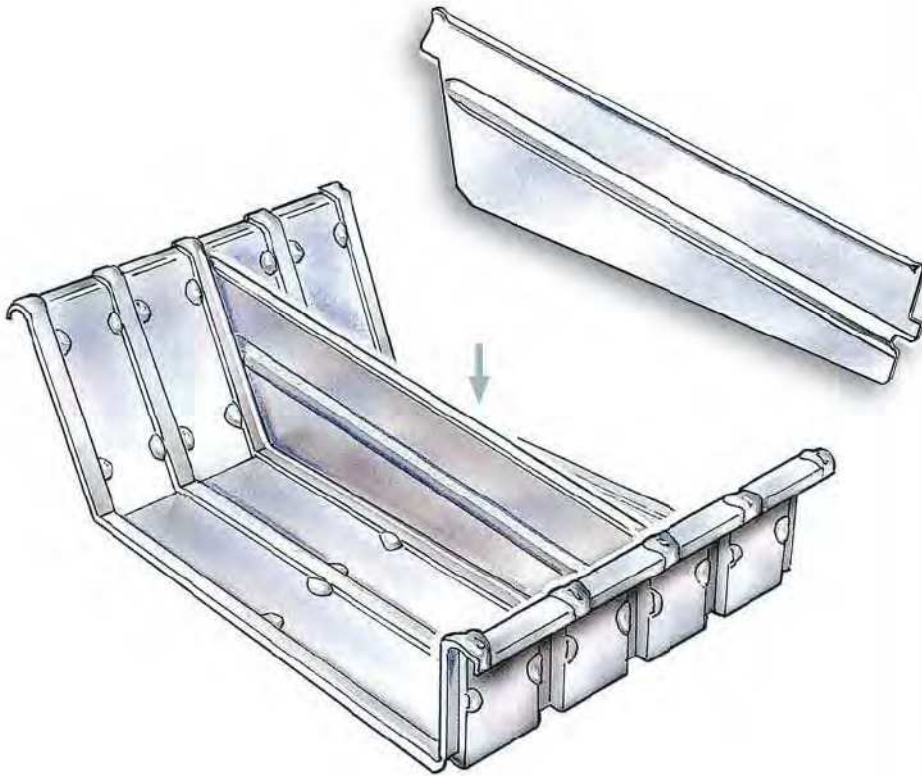
Chipboard shelves of thickness 12 or 18 mm can be fitted using the clips shown at right (Ref.15).



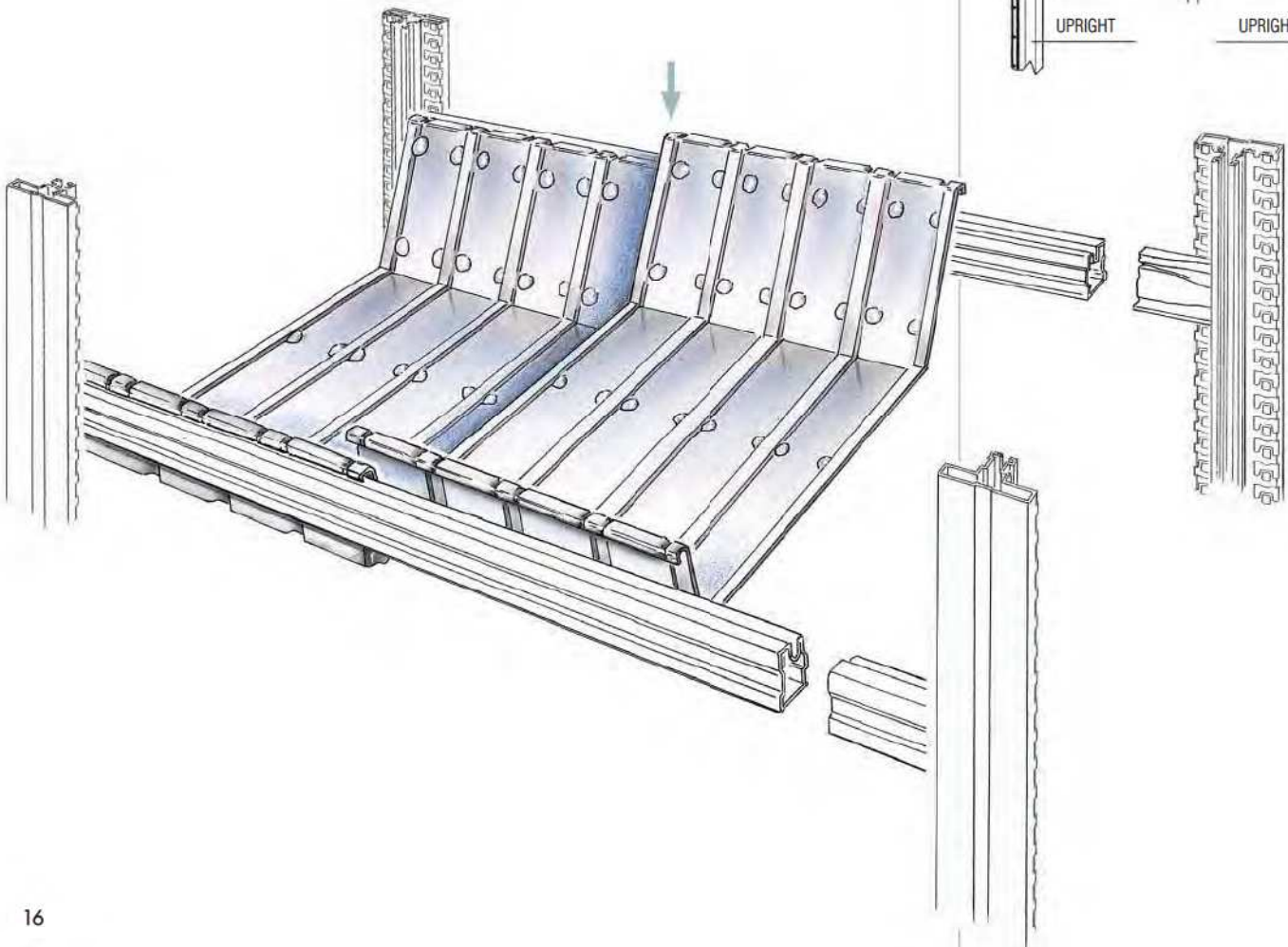
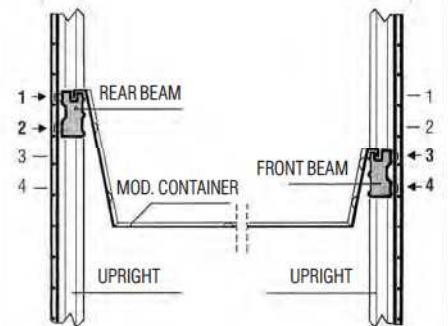
Ref. 15

Modular containers

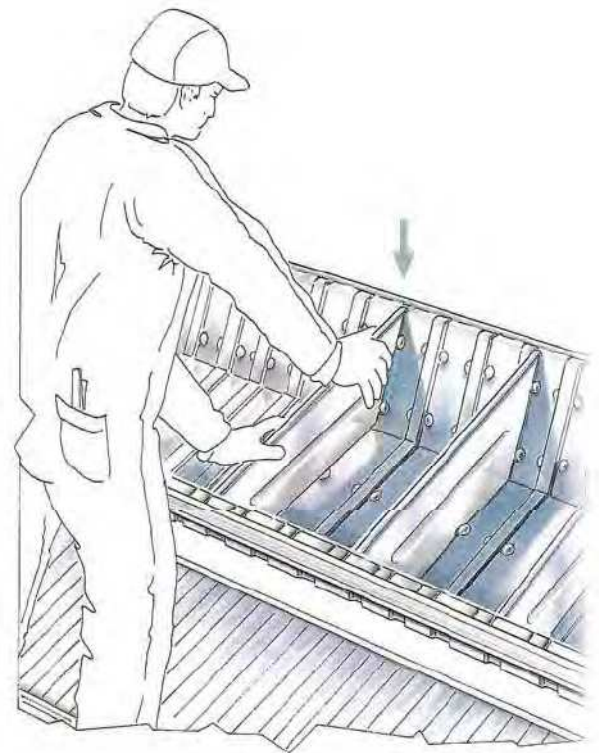
Insert the container from left to right, and join them together by overlapping the beginning of the following container onto the end of the preceding one, pressing them into the recess of the beams H47/H80. To assemble the containers correctly, the rear beam should be fitted two pitches higher than the front one (Ref.16).



Ref. 16



Fit the dividers into the special slotted seats, pushing down to locate (Ref.16). Modular containers and dividers are supplied to a maximum depth of 800 mm.



The capacity of the containers can be increased by fitting bin front and rear panels 200 or 300 mm high.

Ref. 16



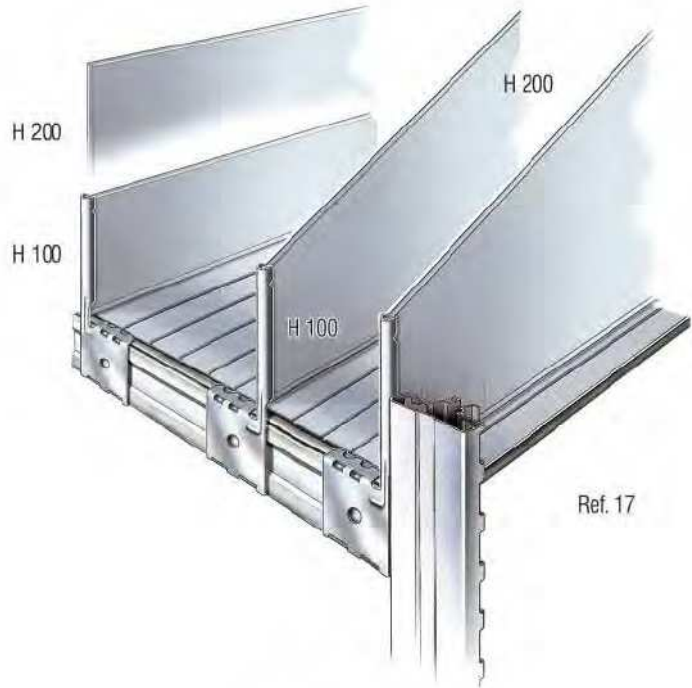
DIVIDERS

A large range of dividers is available.

Vertical sliding dividers

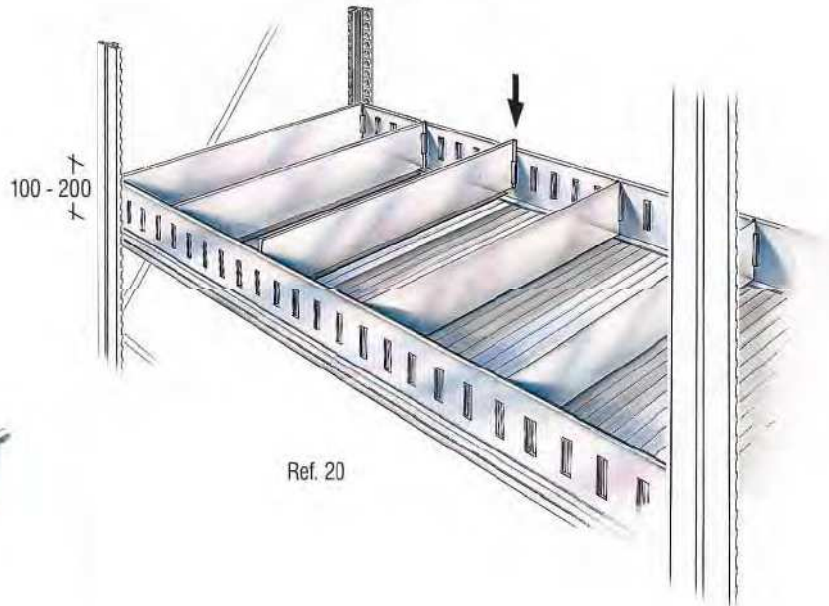
These have been designed to separate loose items (Ref. 17).

The concept of these dividers is based on the following components: a couple of clips (version at right/at left) available for H47 beams, and vertical dividers, available for all frame depths and in two different heights (H=100mm/H=200 mm), as well as in the profiled version (H200/100 mm).



Shelf trays

These comprise a bin front and rear panel 100 mm high placed on a normal shelf with adjustable dividers from 320 to 800 mm in depth (Ref. 20). Bin front panels 100 mm high and rear panels 200 mm high are fitted with profiled dividers (Ref. 21/22).

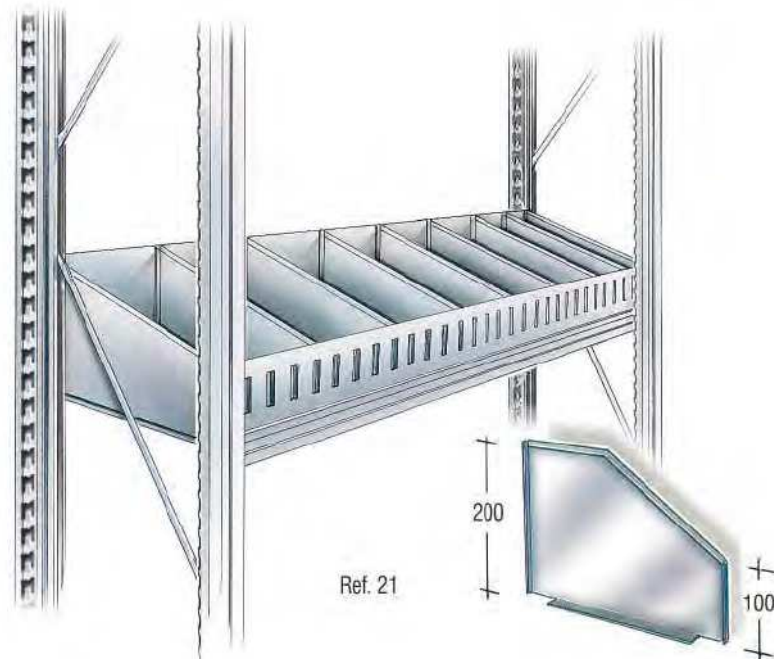
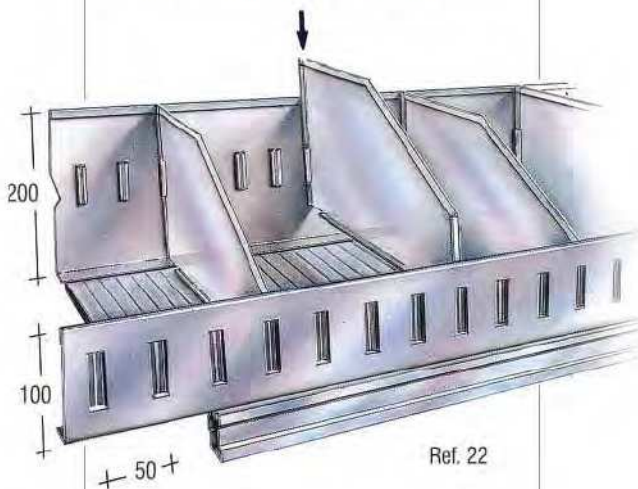


Chest of drawers

The modular drawers are fully integrated with the UNIRACK series and are located directly on the frames.



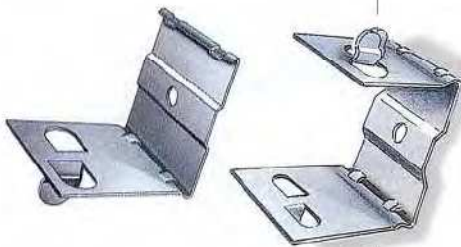
The drawers provide a cost effective solution for the storage of small items.





Plastic Bins "Bull Series"

Open fronted plastic bins are also available for the storage of loose items. More information on page 51.

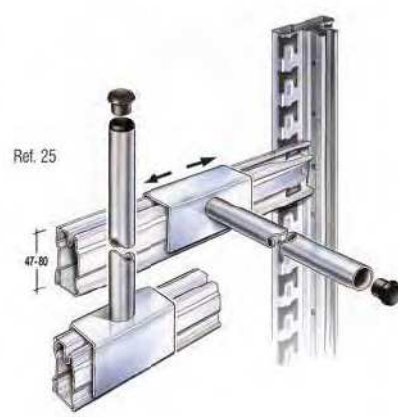
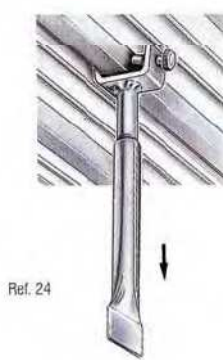


Fixed height dividers

Available in three different heights: 244-344-444 mm. They can be inserted in any position on the shelf by means of spring clips located on the beams H47 (Ref. 23).



Ref. 23



Telescopic Tube Dividers

Used for the separation of cylindrical components or materials difficult to store (windscreens and panels, etc.). They comprise 2 tubes of 18 mm diameter sliding one inside the other. They are fixed to the upper shelf by means of a clamp/screw connection (8MA). A minimum of two tubes should be used for each division (Ref.24).

Dividers for exhaust pipes

Spigots designed for the separation of tubes, exhausts and conduits, etc. They are used both vertically and horizontally and are fitted onto the beams anywhere in the length (not suited for hanging loads) (Ref.25).



ACCESSORIES

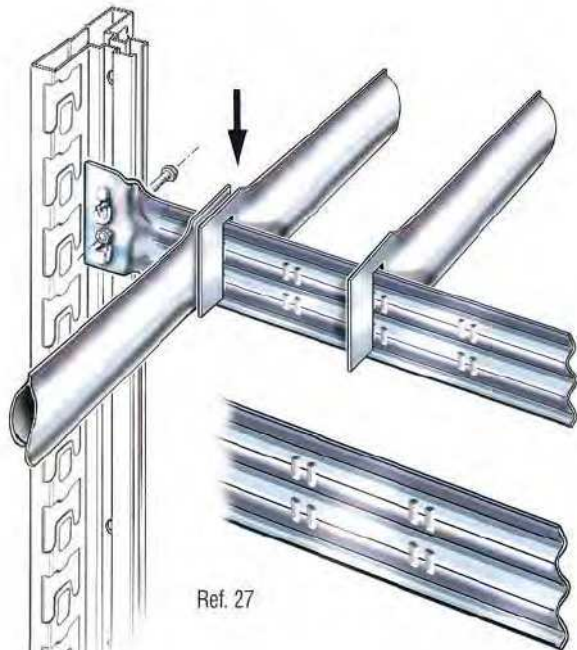
PVC top caps

Should be fitted always to the upright top, both when supporting handrails and normal shelves (Ref.28).

Oval shaped tubes and beams

The oval shaped beams and tubes are compatible with most types of hanger and storage and provide a cost effective solution to garment storage and for hanging loads (Ref. 27/28). The garment hanging shelving can be designed on a single or double entry basis and equipped with shelves as well (see pictures).

The oval tubes fitted onto the spacer bars alone will not stabilise the structure in the horizontal plane and have to be combined with beams above and below.

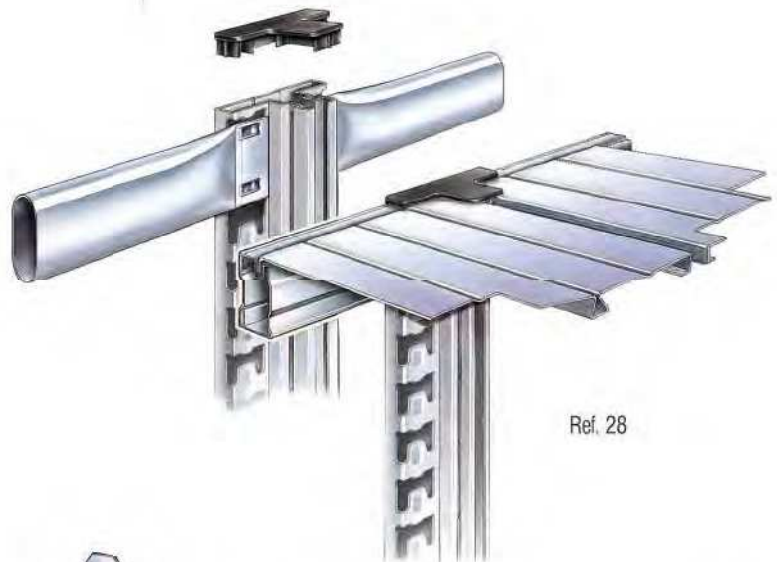


Ref. 27

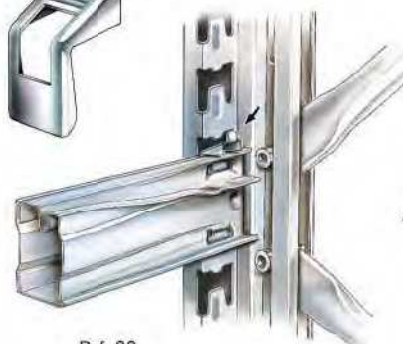
Tyre Storage

The oval shaped beams can also be used for the storage of tyres (see pages 8-9). In this case, please refer to the technical handbook to identify correct use and respective load bearing capacity, as tyre storage introduces dynamic loads into the structure. In the case that the tyres will be stored on H-47-mm beams, it is obligatory to use the US-M series for the frames and the SUPER-3 version of the beams.

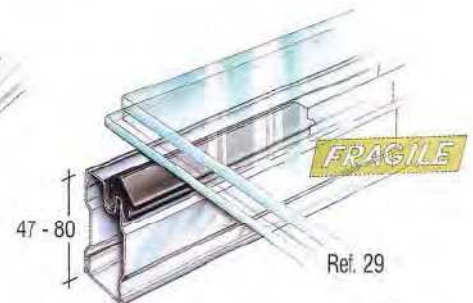
Maximum allowed bay length: 1200 mm.
Maximum allowed frame depth 400 mm, to ensure safe storage and prevent torsional deflection of the beams.



Ref. 28



Ref. 30



Ref. 29

Plastic strip for glass shelves

It can be fitted on the beams H47/H80 in order to protect glass shelves or delicate materials. (Ref. 29).

Security pins

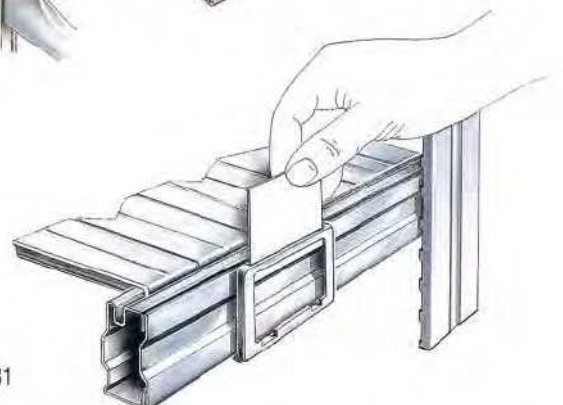
In order to prevent accidental lifting of the beams and shelves, the security pins must be used in all applications (Ref.30). Assembly instructions as per the sketch at right.

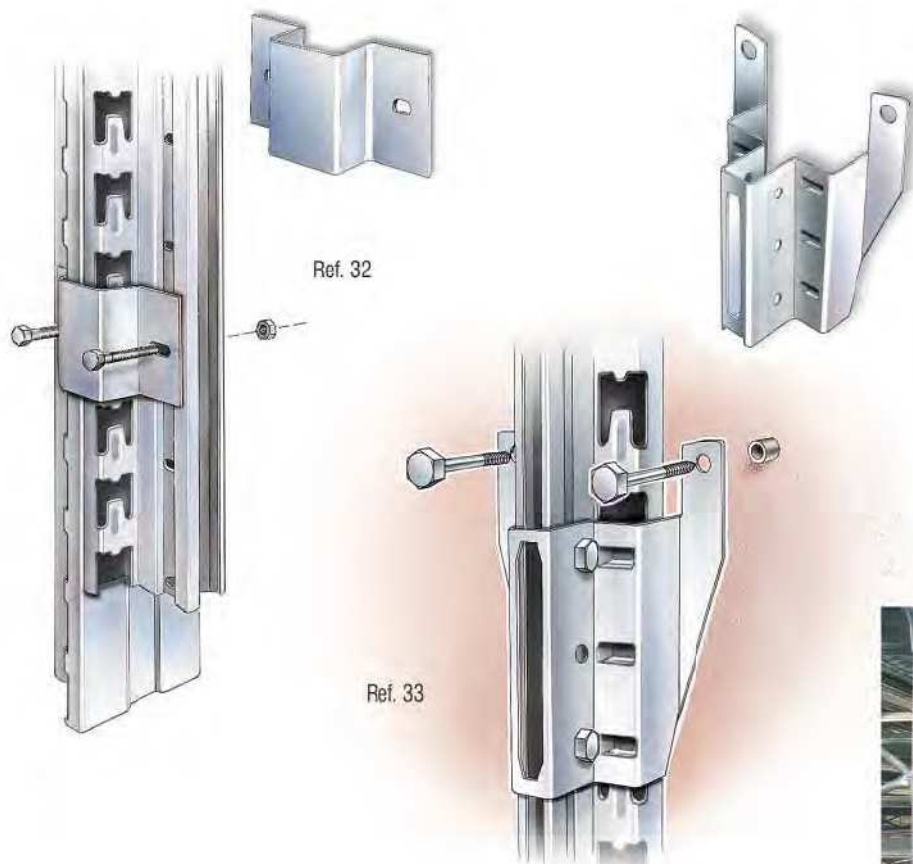
Label Holder

It can be located in any position on both H47 and H80 beams. Dimensions 100x40 mm. (Ref. 31).



Ref. 31



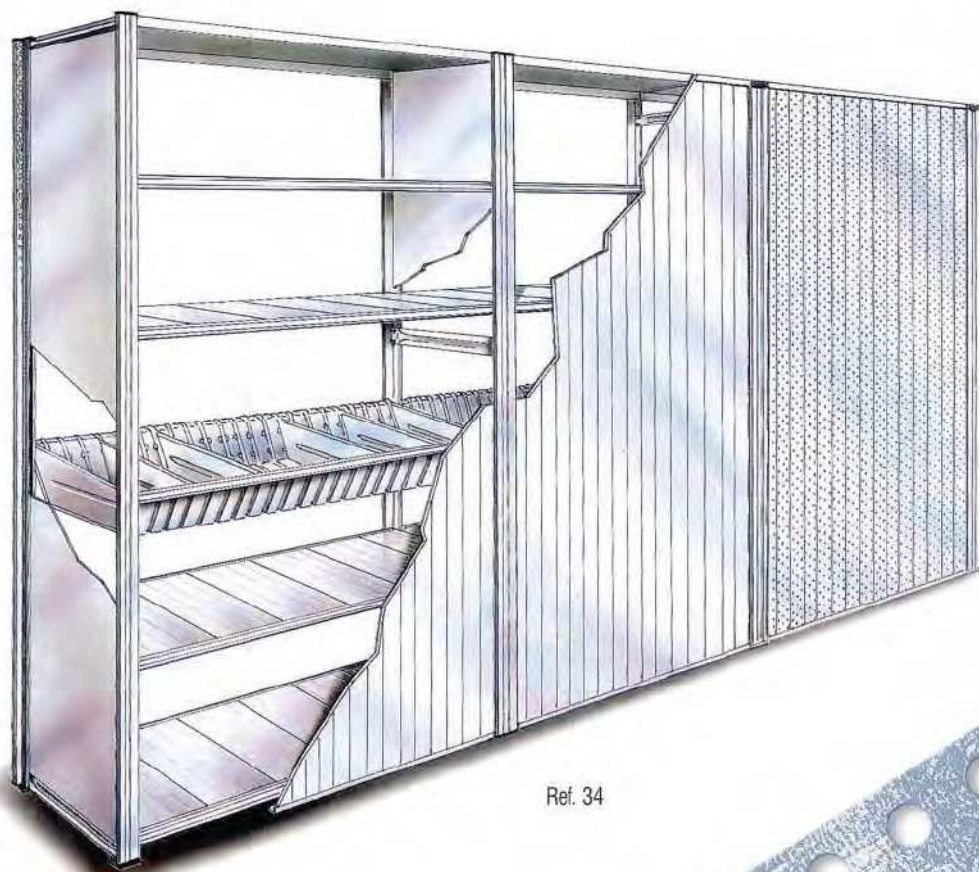


Frames back to back clamps

They are used to fix the frames together when building back-to-back bays to improve stability. They are located at mid height (Ref. 32).

Wall fastening brackets

This component (article nr.SLACC131) is located by means of wall dowels 8x50 mm (art.n°00040) and bolts 6x35 mm (art.n°69816), providing a method to fix the frames to a wall for stability (Ref.33).



CLADDING H25

Back panels H25 are produced in two standard sizes (300x25 mm and compensation panels 240x25 mm) and in varying heights of 1485-1940-2480 mm.

Back claddings in any dimension can be built up in a modular form, using channel profiles "U" (art. nr. 69800) and "H" (art. nr. 69803) as end and middle joints (Ref.38). In the case of the standard modular back panels being lower than the respective frame, "H" section profiles may be used at the bottom of the panels, to achieve equal height (Ref.38).

Ref. 34



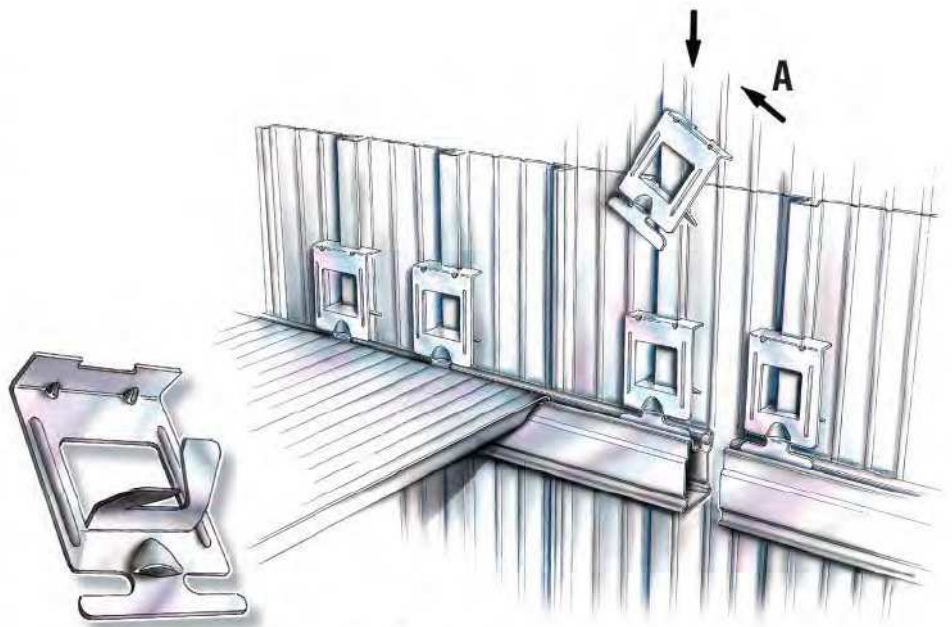
Punched hole back panels H25 (according to European Standard) are also available, similar to those described before, with 5 mm holes at 25 mm centres.

The H25 mm cladding panels are assembled and fixed to H47/H80 mm beams by means of fastening clips (Art. nr. 68108) (Ref.35).

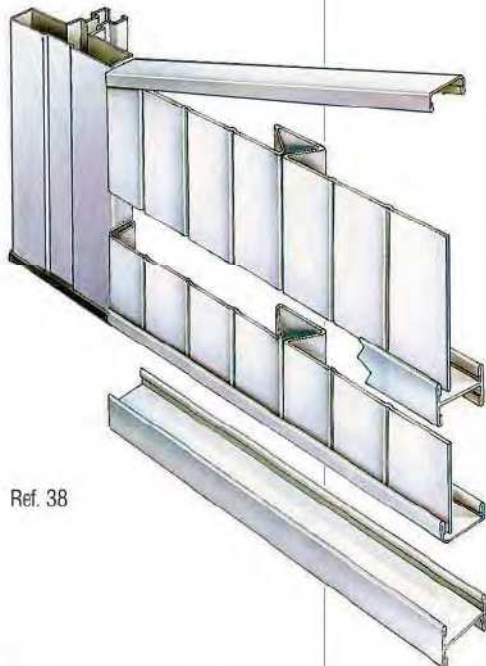
Cladding between back-to-back bays is fitted in the same manner as described above (Ref.36). For cladding between back-to-back bays, the 240 mm wide compensation panels must be used (see drawing on page 25).

Channel and joint profiles for back cladding

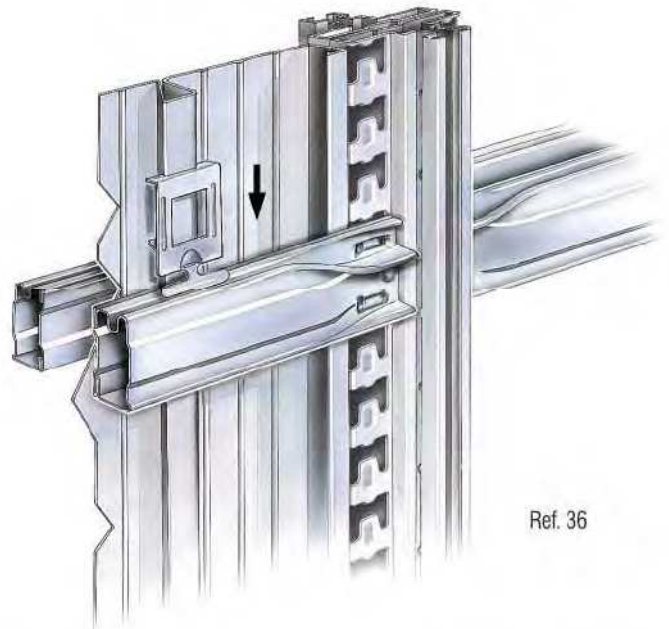
The channel profiles "U" and "H" can be used as end and middle joints for H25 back cladding (Ref.38).



Ref. 35



Ref. 38



Ref. 36





Ref. 37

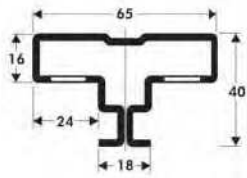
Side and End Frame Cladding

This type of cladding is produced in heights 1368-1468-1868-2368-2468 mm for all frame depths. Thus, side and end frame claddings of any dimensions can be provided. Fixing is made by means of 6x10 mm screws (Ref.37).

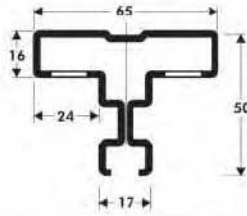


Ref. 39

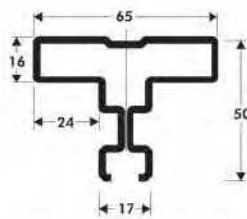




UPRIGHT SECTION
SERIES USA - USB - USM



UPRIGHT SECTION SERIES USR

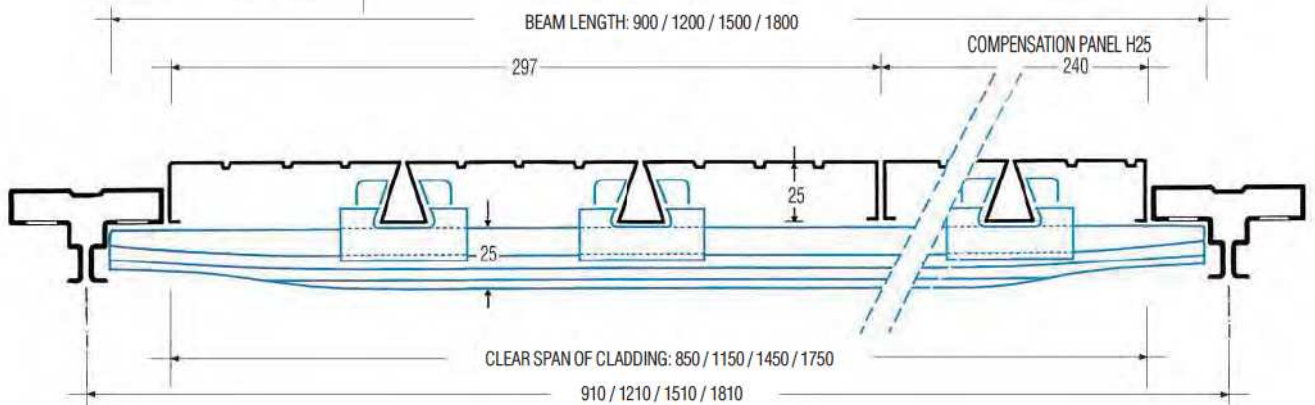


UPRIGHT SECTION SERIES USP
to locate H30 solid shelves

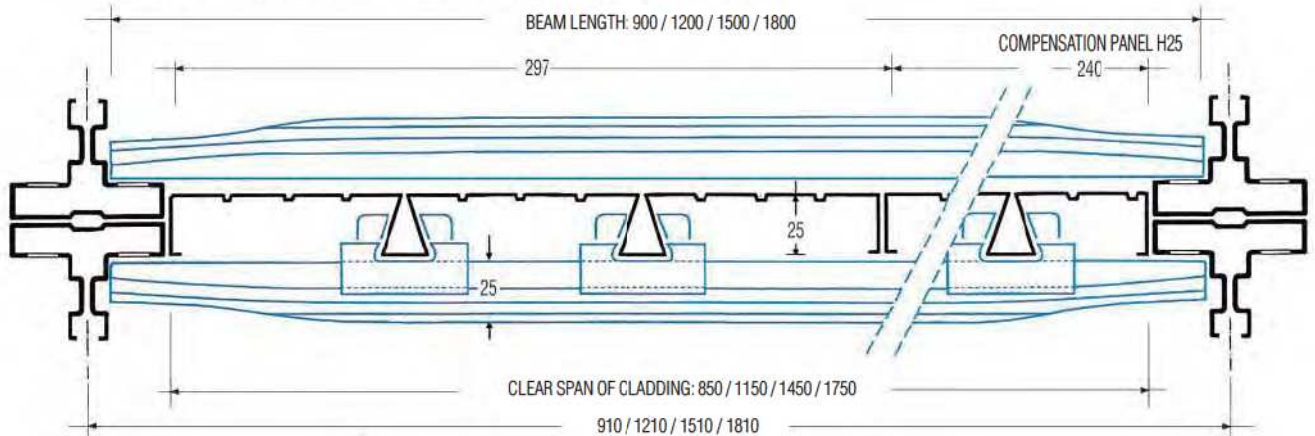


The sketches shown below explain the make up and assembly of H25 cladding. They can be used in conjunction with H47/H80 beams only.

BACK CLADDING H 25



BACK CLADDING H 25 FOR BACK-TO-BACK BAYS



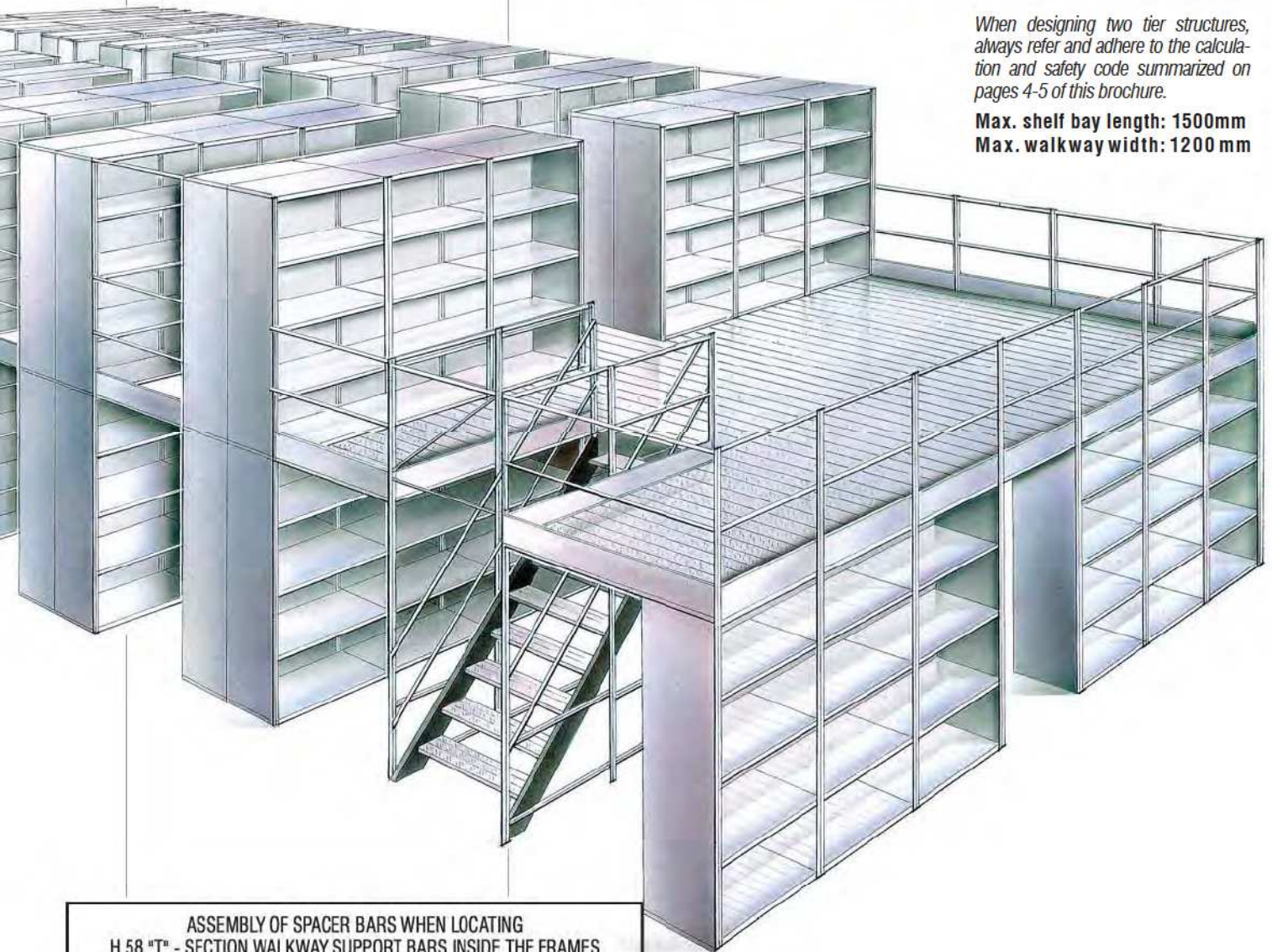
TWO TIER STRUCTURES WITH SUSPENDED WALKWAYS USM-USR (max. load bearing capacity=300 daN/m²)

Two tier structures, even varied and complex have been designed and perfected by METALSISTEM combining light with high strength, in the METALSISTEM tradition.
Two tier structures up to a height of 8000 mm can be designed.



When designing two tier structures, always refer and adhere to the calculation and safety code summarized on pages 4-5 of this brochure.

Max. shelf bay length: 1500 mm
Max. walkway width: 1200 mm



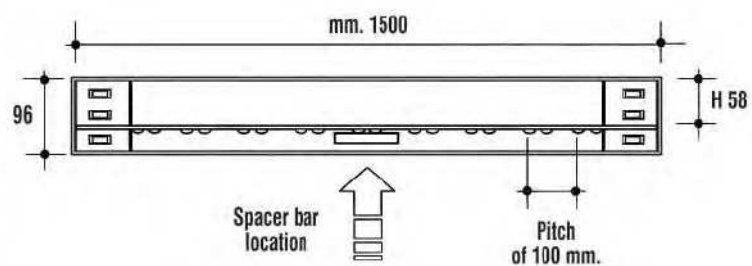
ASSEMBLY OF SPACER BARS WHEN LOCATING H 58 "T" - SECTION WALKWAY SUPPORT BARS INSIDE THE FRAMES

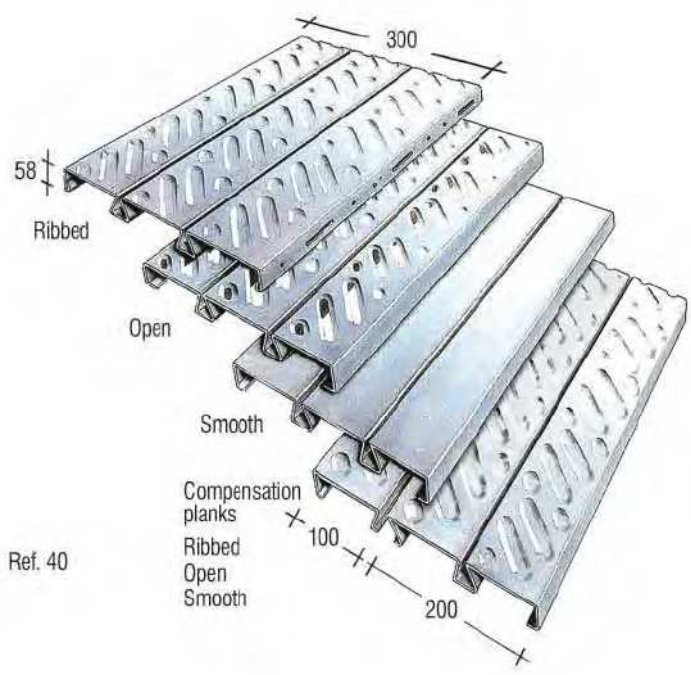
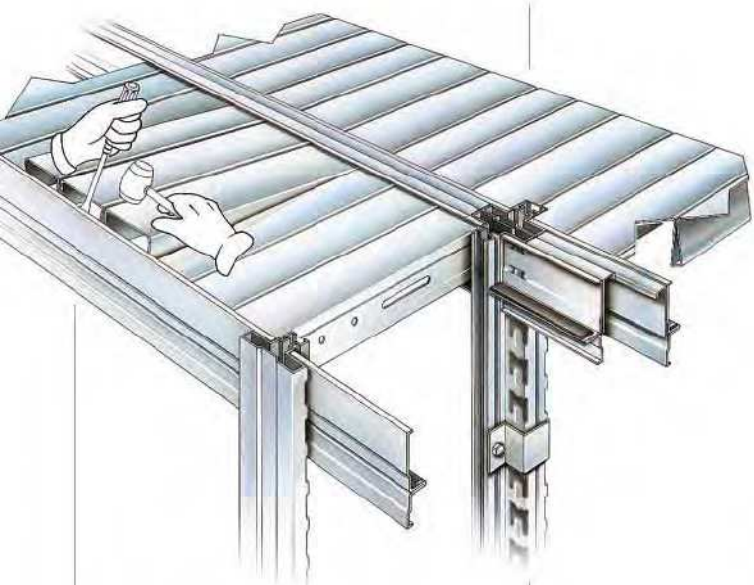
L 900 : NO SPACER BAR

L 1200 : ONE SPACER BAR AT THE CENTRE

L 1500 : ONE SPACER BAR AT THE CENTRE

- NOTE:**
- The spacer bars connecting the "T"-walkway support bars must be ordered in a special length (10 mm narrower than those used to assemble the standard frame).
 - When building staircases, customers should fit one spacer bar under each stair tread.
 - The load bearing capacity of the H58-T-section walkway support bars are stated in the technical addendum.



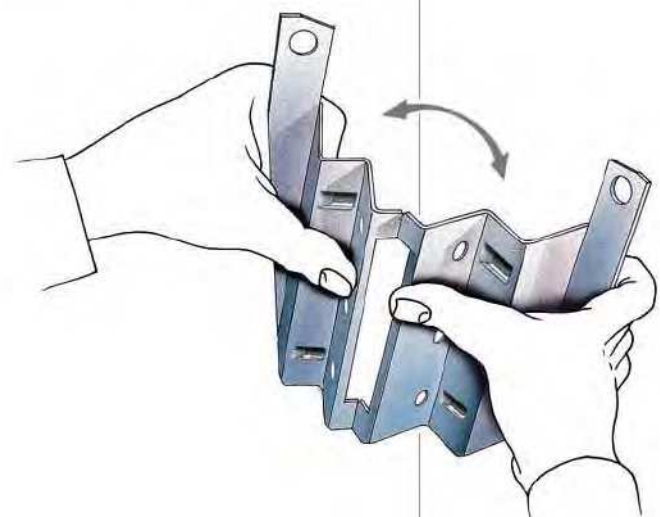
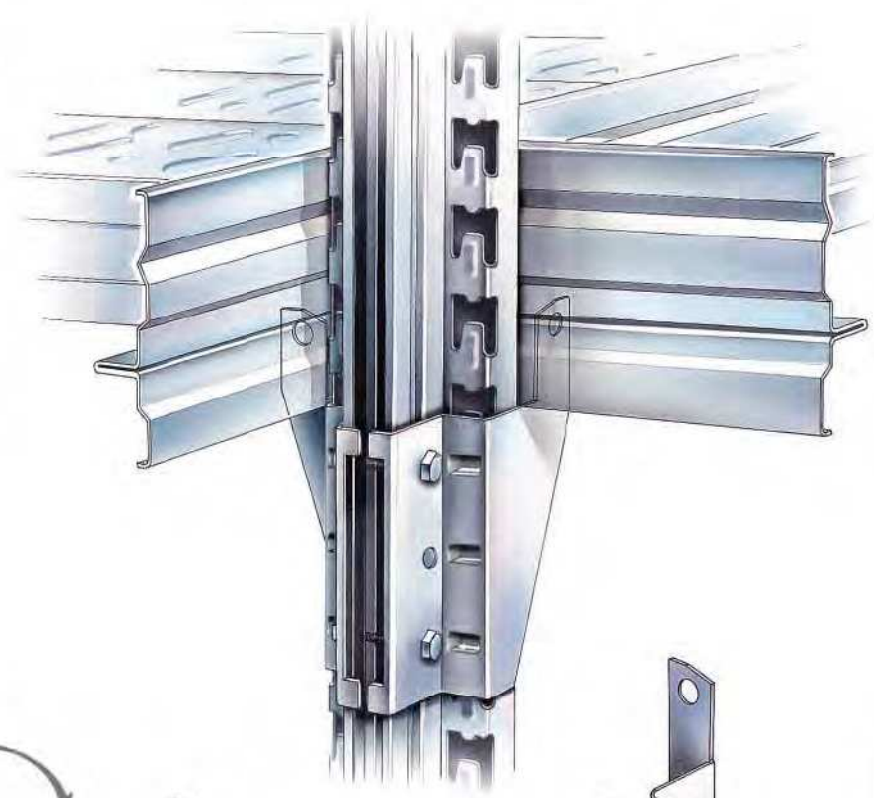


Steel planks

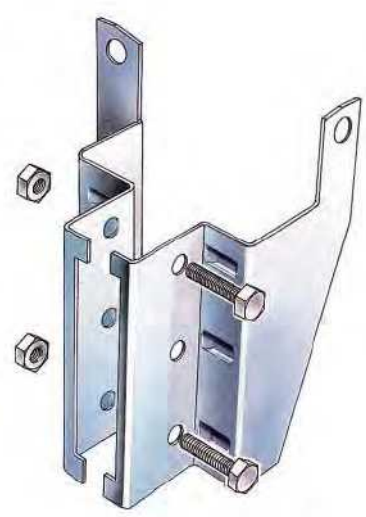
These can be supplied with three different surfaces: ribbed, open and smooth, together with compensation panels and fastening components. The steel planks are inserted into the "T" section supports by levering between the panel and the support (Ref. 40). There are two types of steel planks: one for walk-through bays and one for walkways. When ordering, always refer to the length of the respective spacer bar used for building the walkway or the frames.

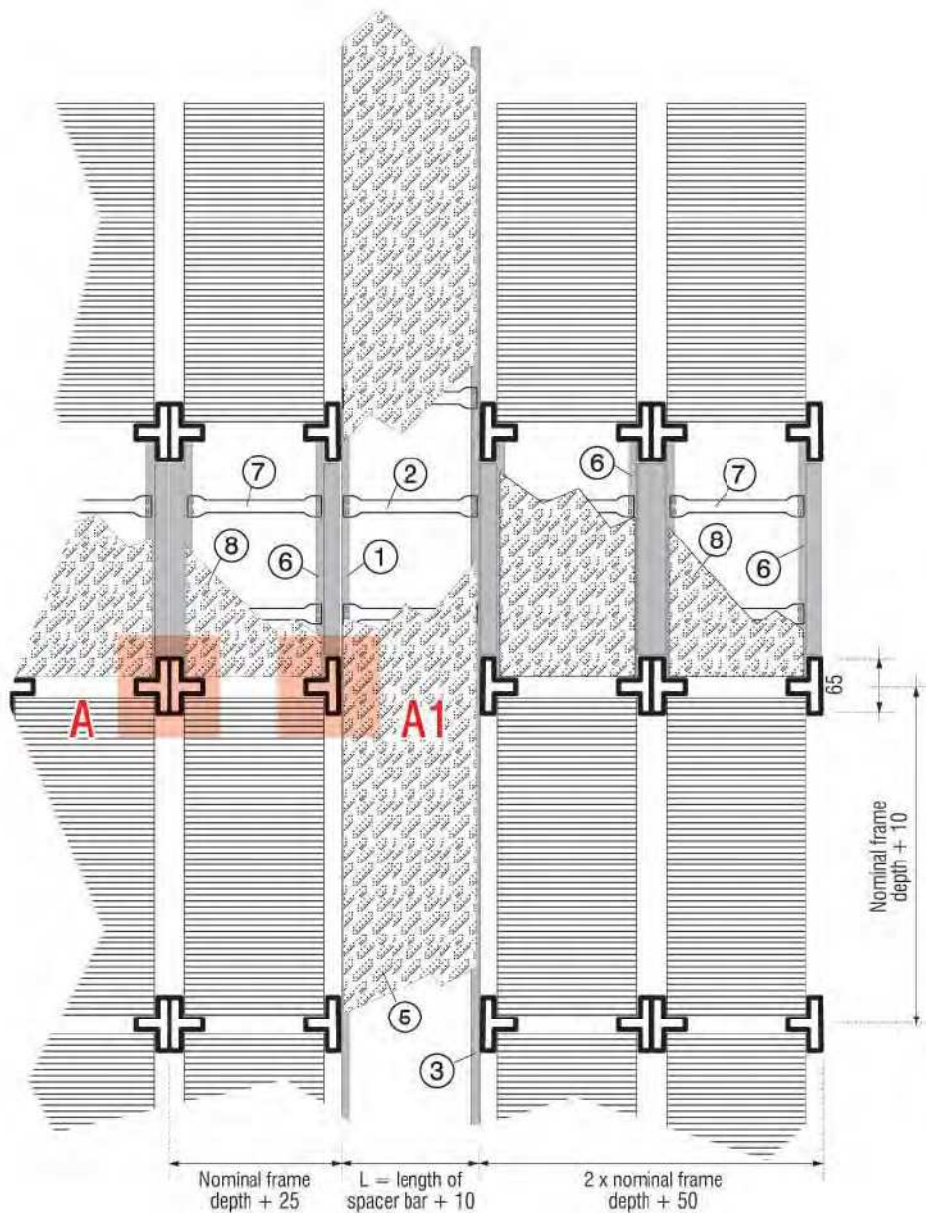
"T-Section" Support bracket - at 90°

"T-Section" support bars can be located at 90° by assembling one half of a wall fastening bracket (art. nr. SLACC131) and one half of a "T-section" support bracket (art. nr. SLACC130) (Ref. 41).



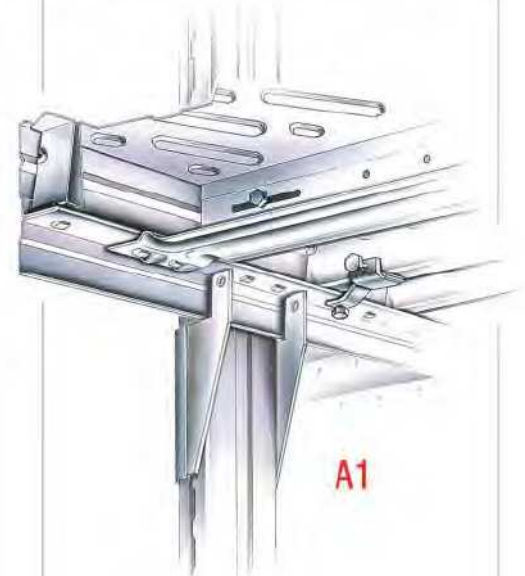
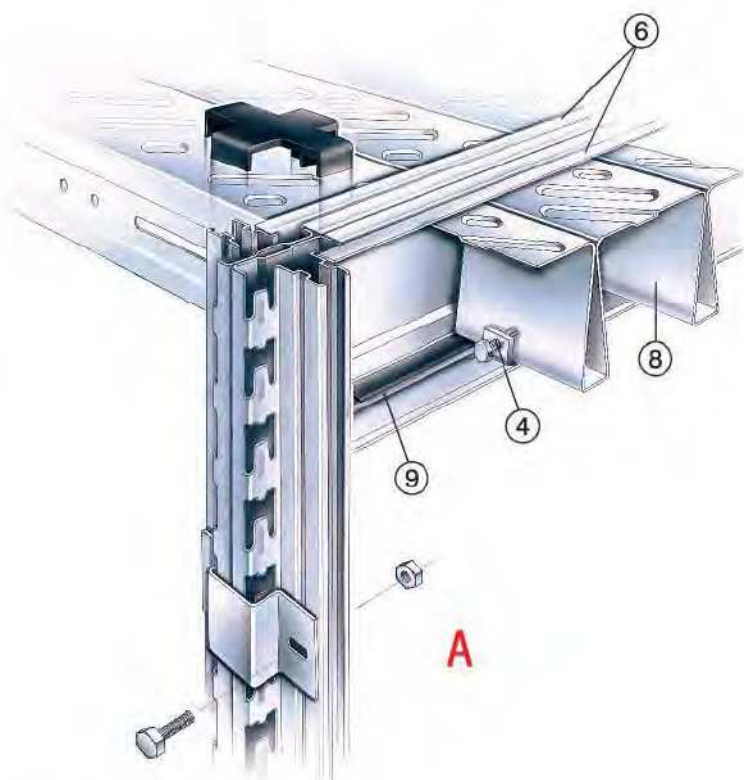
Ref. 41





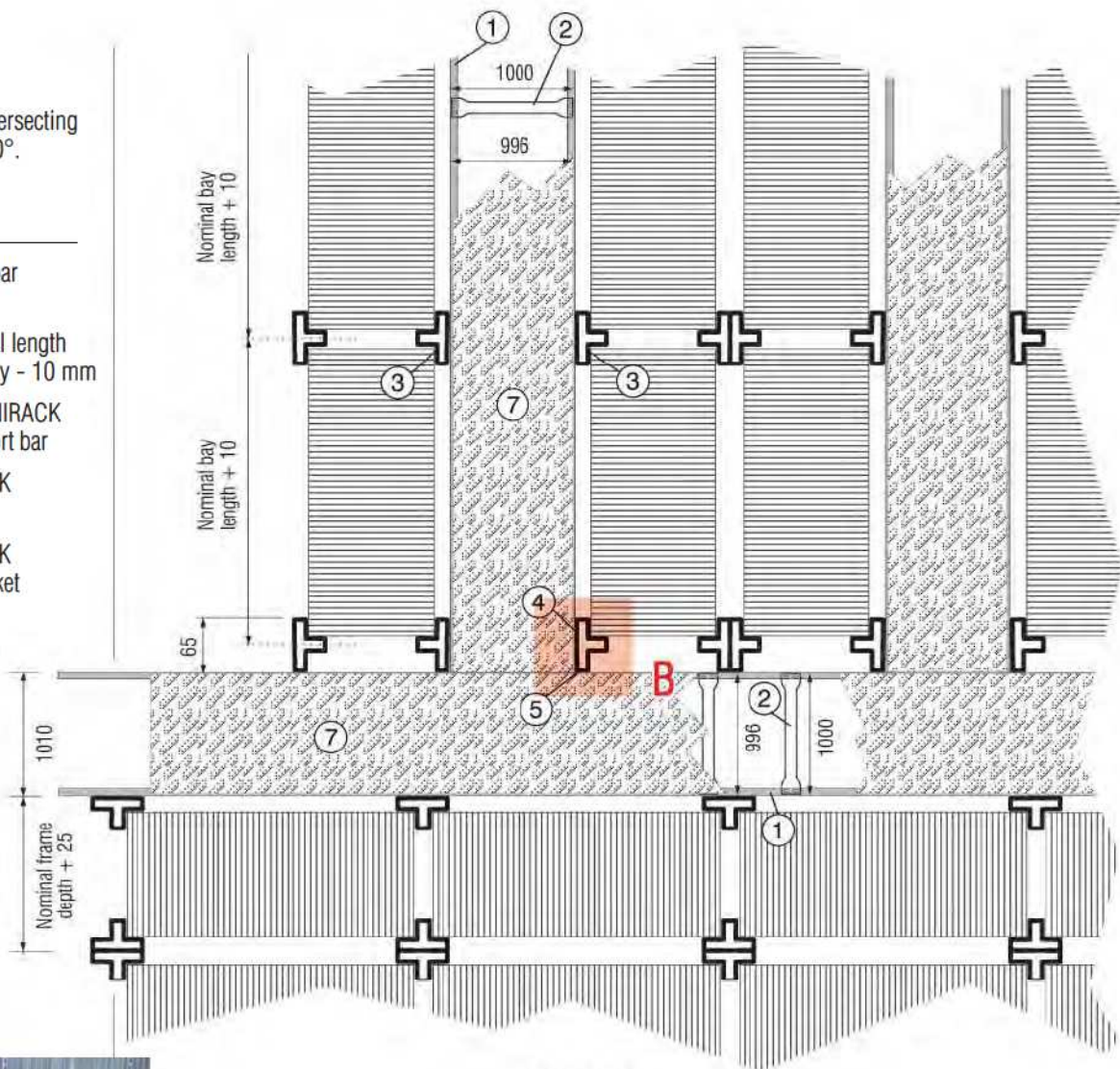
CONFIGURATION ...where intersecting aisles combine with main walkways.

ID	Article nr.	Description
1.	67015	T-section support bar H58 - walkway
2.	99044	Spacer bar - special length L=length of walkway - 10 mm
3.	SLACC130	Support bracket UNIRACK for T-section support bar
4.	69829+69824+69861	Clamp and bracket for beams up to 20 mm
5.	69707	Steel planks H58 "walkway" L=length of special spacer bar (see ID - nr. 2)
6.	SLACC222 SLACC224 SLACC226	T-section support bar H58 -inner frames
7.	99044	Spacer bar - special depth L=nominal frame depth - 10 mm
8.	69704	Steel planks H58 "inner frames" L=nominal frame depth
9.	67021	Noise dampening strip



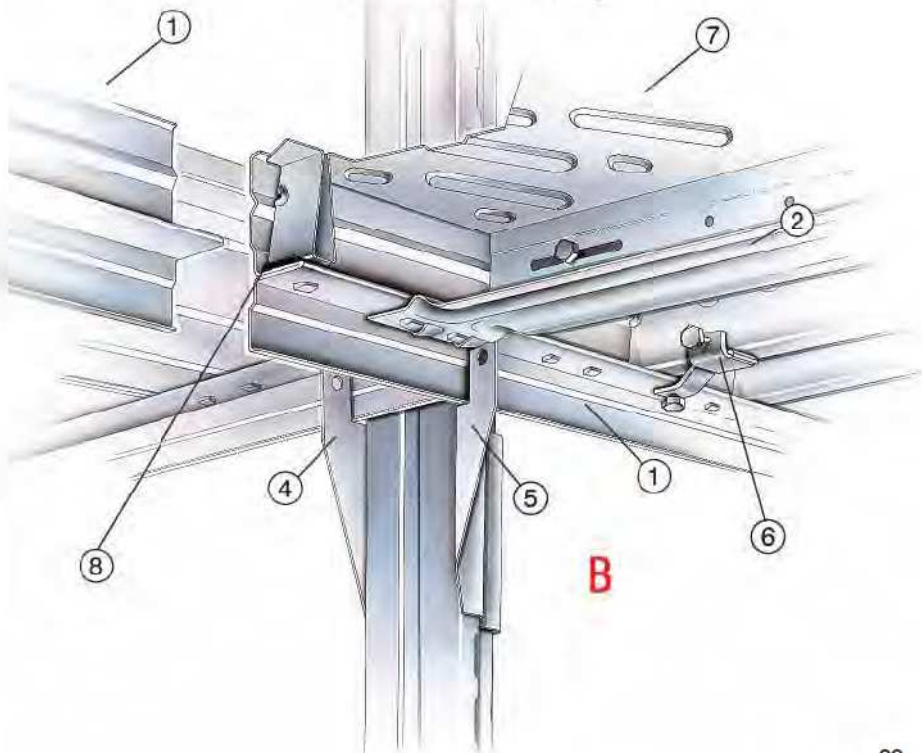
CONFIGURATION ...where intersecting aisles meet with walkways at 90°.

ID	Article nr.	Description
1.	67015	T-section support bar H58 - walkway
2.	99044	Spacer bar - special length L=length of walkway - 10 mm
3.	SLACC130	Support bracket UNIRACK for T-section support bar
4.	SLACC130	Half of the UNIRACK support bracket
5.	SLACC131	Half of the UNIRACK wall fastening bracket
6.	69829+69824+69861	Clamp and bracket for beams up to 20 mm
7.	69707	Steel planks H58 "walkway" L=length of special spacer bar (see ID - nr. 2)
8.	67021	Noise dampening strip



Example:

1010 mm = width of walkway
 1000 mm = length of spacer bar of walkway
 996 mm = real length of steel planks for walkway (when ordering please specify the dimension of the spacer bar used to build the walkway).



Modular Sliding Gate

The modular METALSISTEM sliding gates are supplied preassembled. The guide rail for the sliding gate is made from a USP-upright profile supplied in standard lengths of 4500 mm which has to be cut to size on site according to individual needs. For available dimensions and ordering, please refer to page 48.

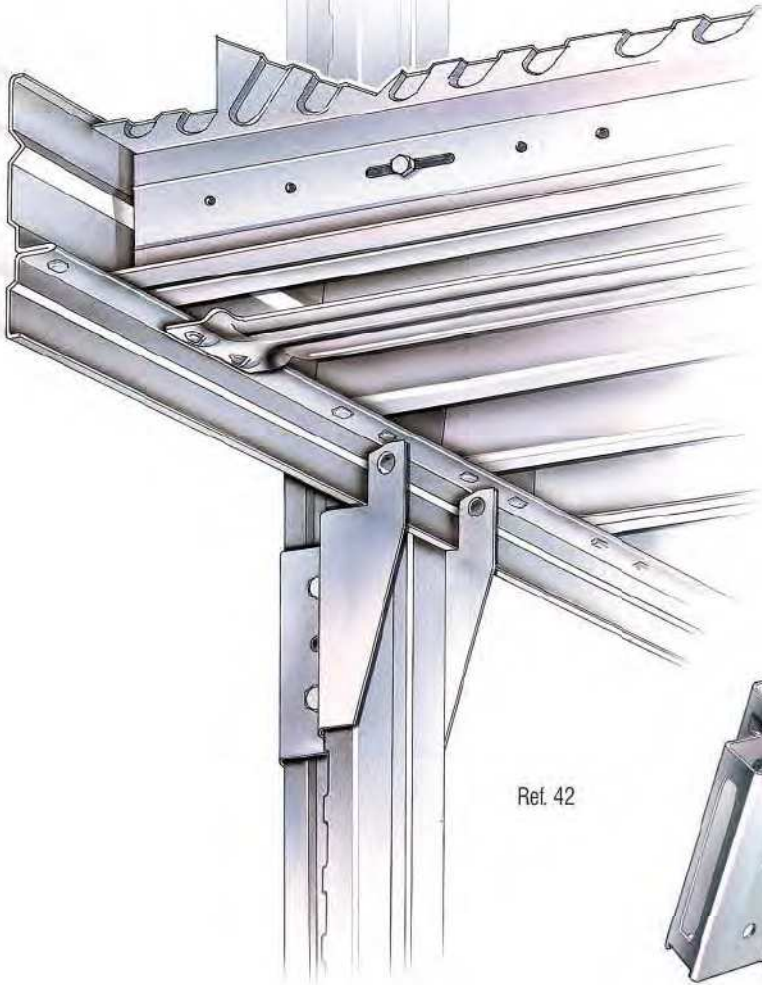
Assembly instructions

Two-tier structures

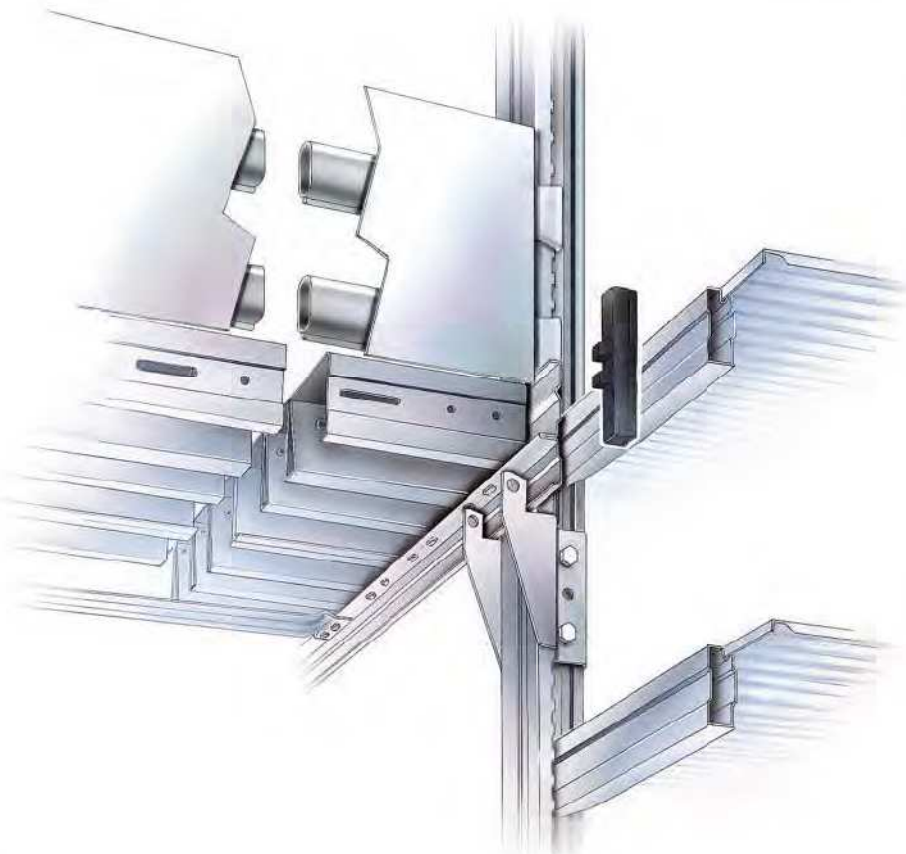
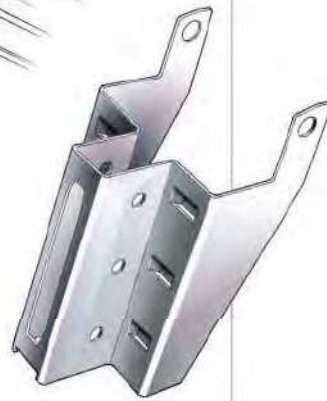
The "T-section" support bracket used for two tier structures makes construction very easy and rapid and is located onto the uprights by bolts & nuts 6x30mm (Ref. 42).

Assemble the "T-section" support bars by fitting spacer bars (art.nr.99044) underneath, at approximately 80 cm centres. When ordering, the length of these spacer bars should be indicated referring to the overall width of the walkway -10 mm.

A noise dampening adhesive strip is fitted onto the "T-section" support bars, beneath the walkway panels.



Ref. 42



Handrails and kickboards

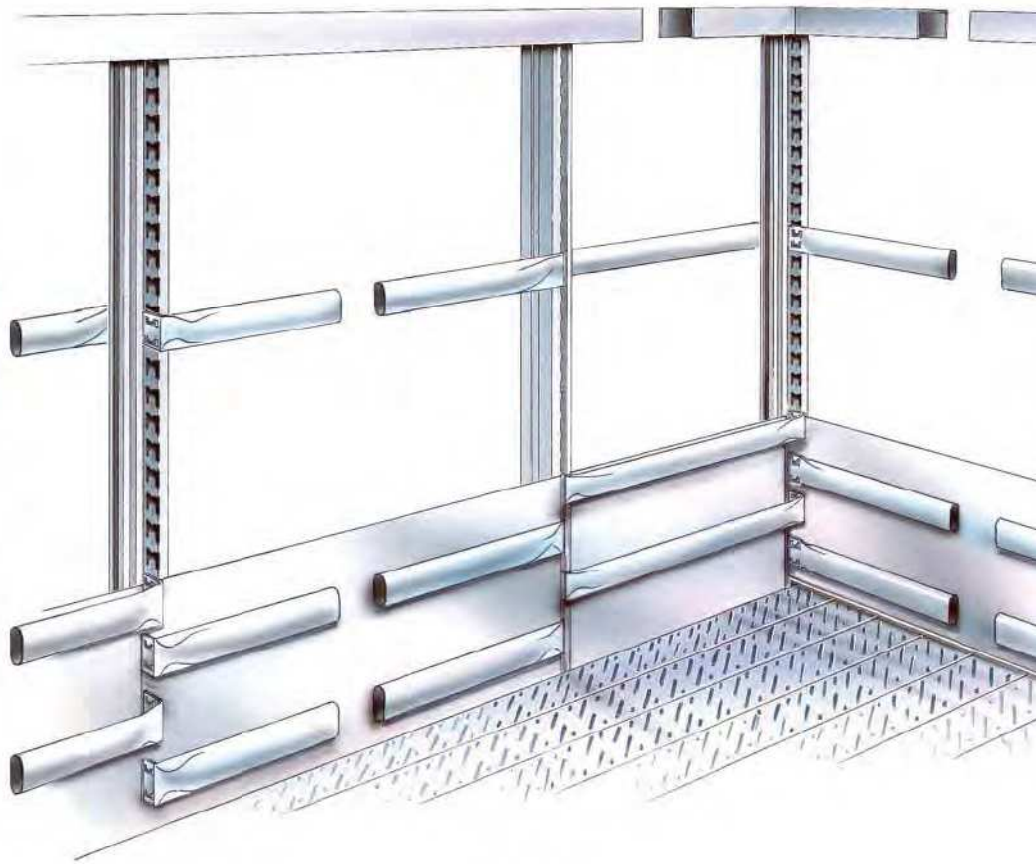
Handrail, knee rail and kickboard dimensions are specified at project design stage (Ref. 43).



Kickboards

Three different types of kickboards are available: for use in the direction of the beams, at the end of a run within uprights, or for walkway ends.

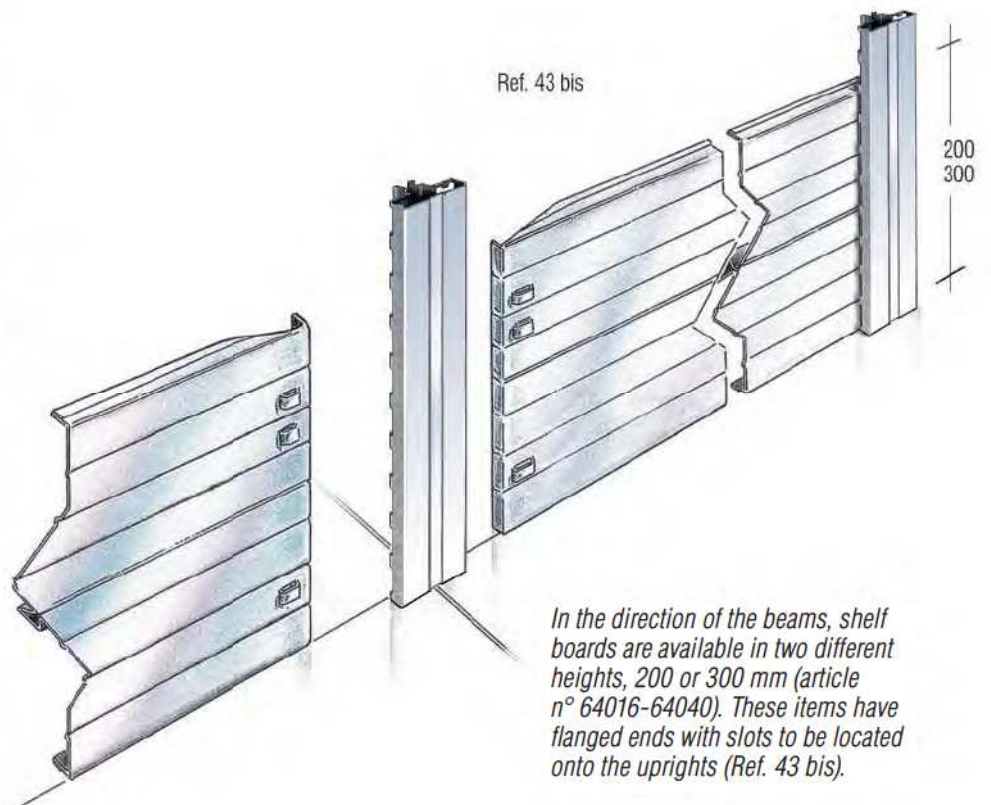
Kickboards are made from two oval shaped tubes (the same used to build the handrails) fixed to the uprights and finished off with a metal sheet element located onto the oval shaped tubes by self tapping screws. For correct ordering of these items and dimensions, please see instructions on page 48 of this brochure. The use of beam retaining clips is mandatory.



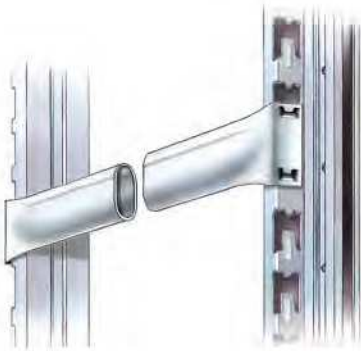
Ref. 43



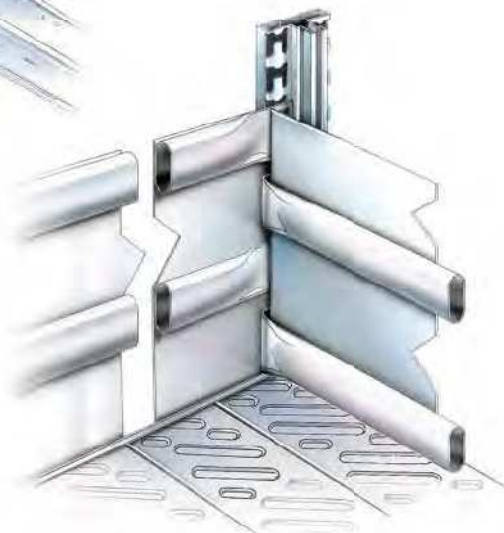
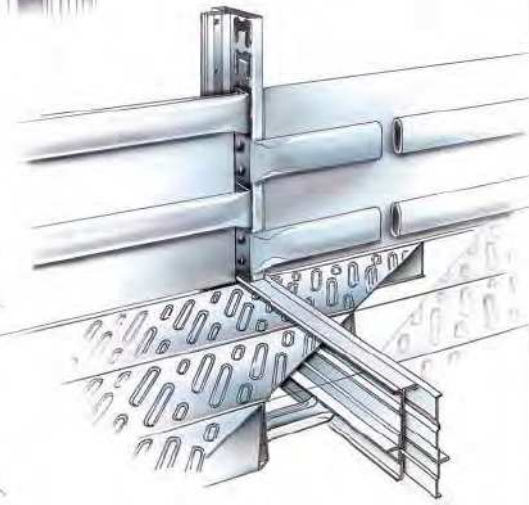
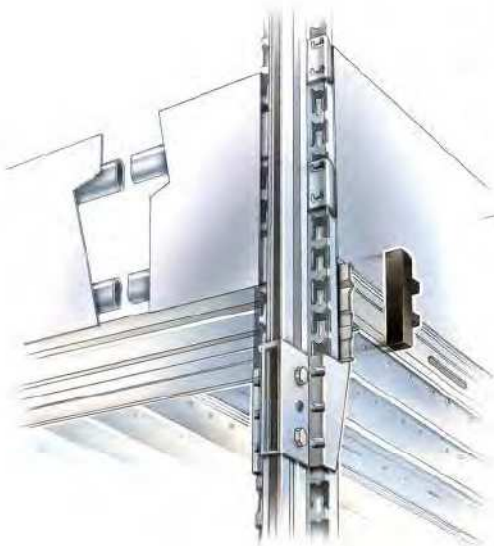
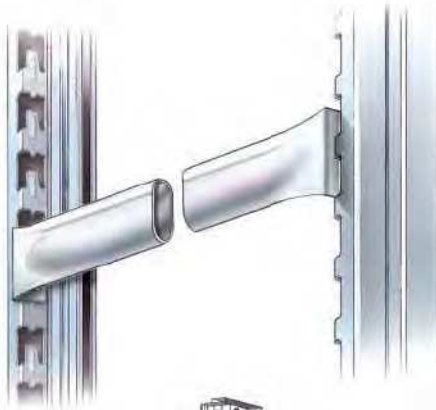
Ref. 43 bis



In the direction of the beams, shelf boards are available in two different heights, 200 or 300 mm (article n° 64016-64040). These items have flanged ends with slots to be located onto the uprights (Ref. 43 bis).



Ref. 44

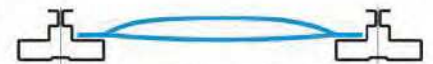


Handrails

The handrails made from oval shaped profiles (Ref. 44) are assembled as follows:

- n°1 tubular handrail
- n°1 tubular kneerail
- n°1 kickboard, made from two oval shaped profiles and finished off with a metal sheet element located onto these profiles.

The use of the beam retaining clips is mandatory.



Art nr 36501 -36510



Cod. 67402



Cod. SLACC118

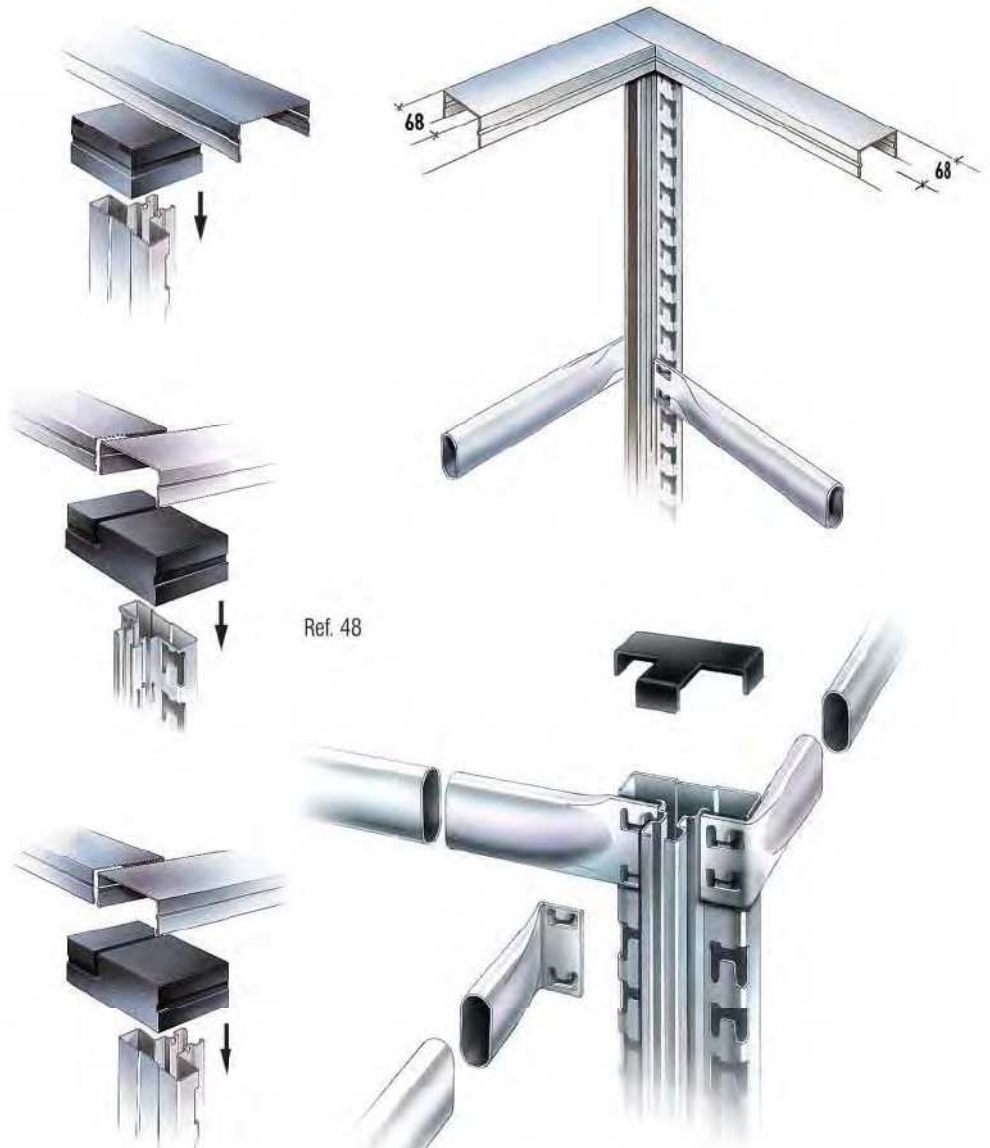
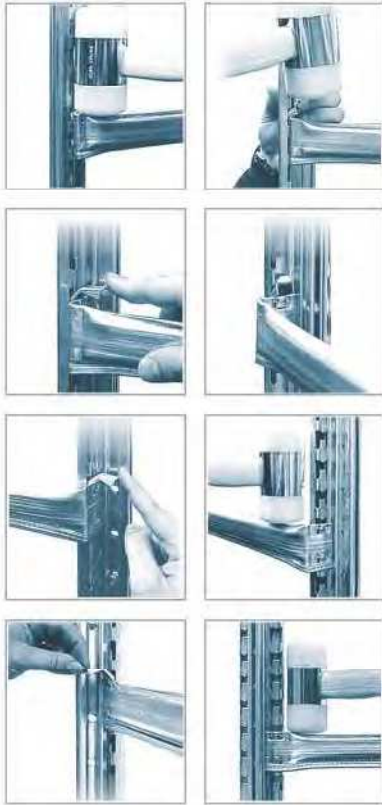
When ordering, customers should pay attention to the following instructions and indicate:

- the length of the special spacer bar of the walkway, when ordering art.n° SLACC118 (for example: overall width of walkway 1010 mm, length of spacer bar and handrail 1000 mm);
- the nominal frame width, when ordering art.nr. 67402;
- the nominal bay length, in case of art. nr. 36501 - 36504 - 36507 - 36510.

For correct ordering of these items, please also refer to page 48 of this brochure.

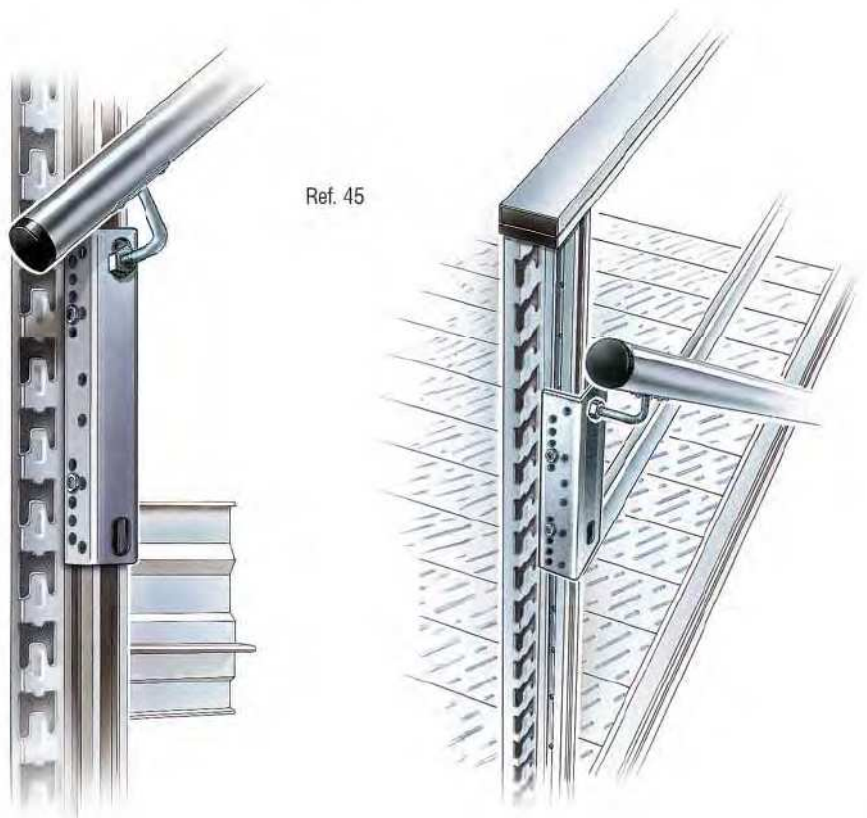
As an alternative to the oval shaped profiles, "U"-section profiles are available as well (Ref. 48).

The "U"-section profiles, 68 mm wide (Art. n° 69808) come in a standard length of 4000 mm and are assembled in conjunction with special PVC supports (Art. n° SLACC076 - SLACC077 - SLACC078).



Staircase Handrail

Thanks to the handrail support bracket (Ref. 45), the staircase handrail can be easily located on the uprights, without any need to drill holes.



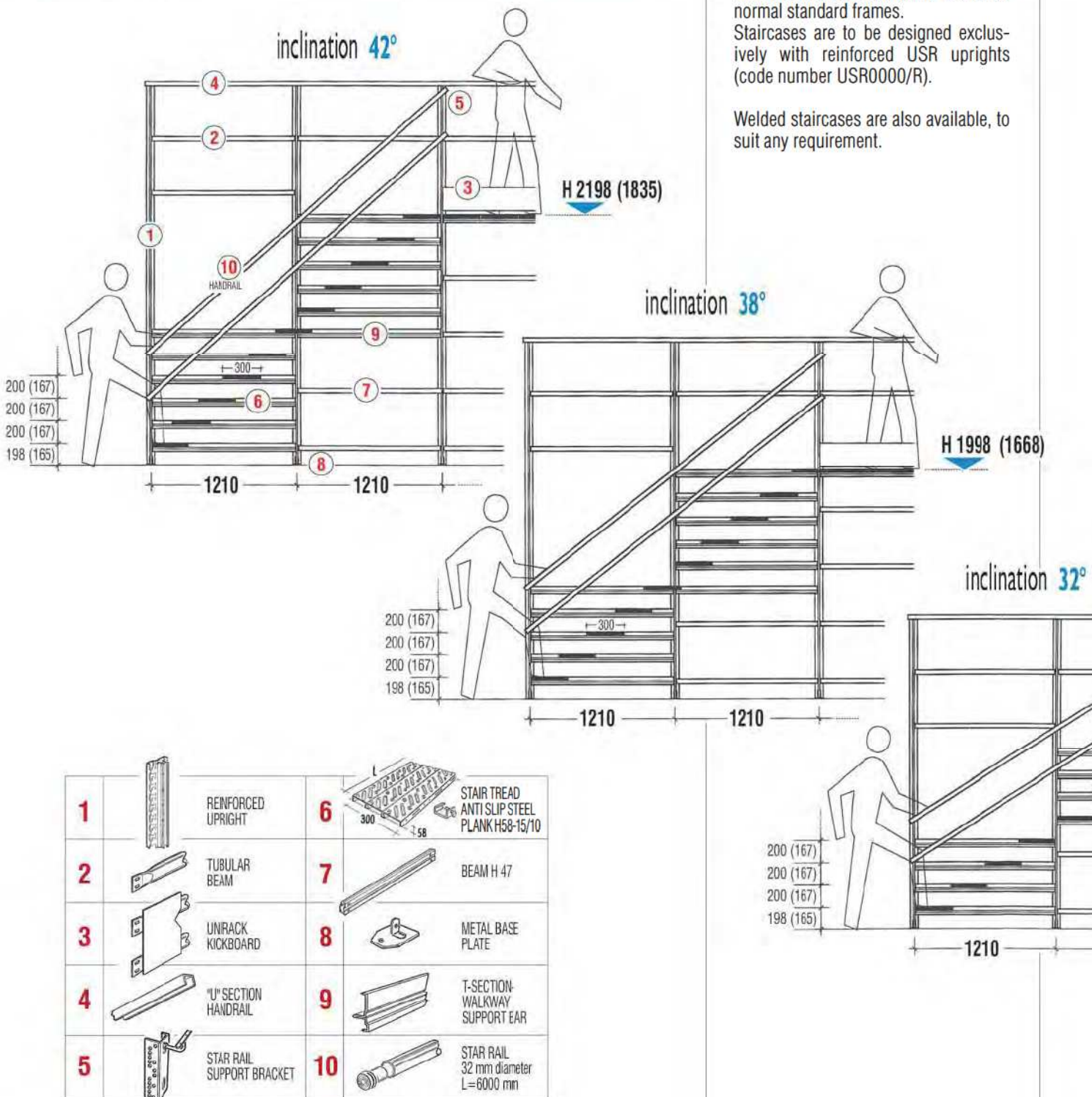


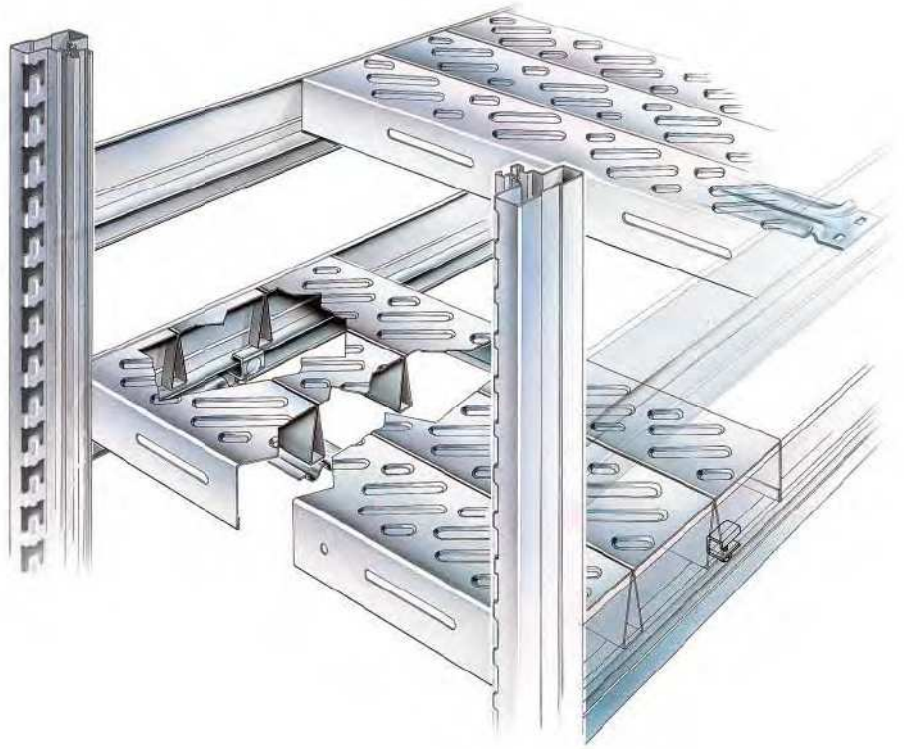
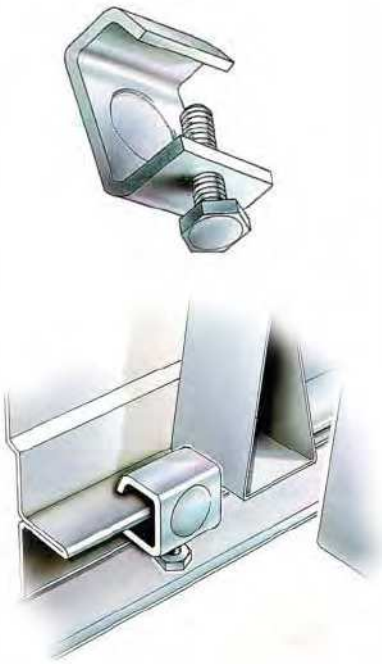
STAIRCASES

These can be built using standard components. The length of the stair treads is specified as a steel plank "inner frame" with a dimension between uprights (i.e. the nominal frame depth). The stair treads are made from anti slip steel planks and are to be fixed with four special clips (Art. nr. 69829 + 69824). To improve the stability and load bearing capacity of the staircase, the "T" section beams H58 should be assembled by fitting one spacer bar under each stair tread. These spacer bars will be 10 mm narrower than those used to assemble normal standard frames.

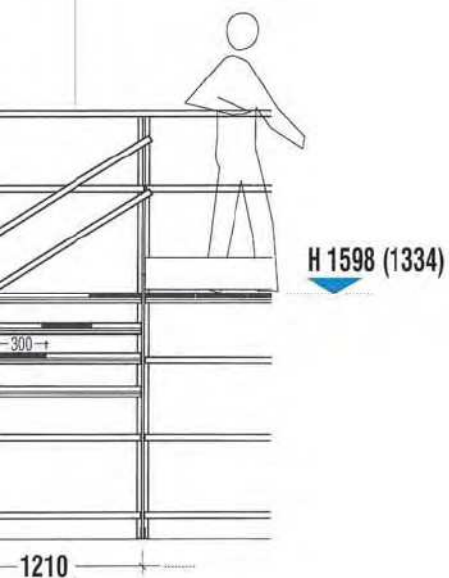
Staircases are to be designed exclusively with reinforced USR uprights (code number USR0000/R).

Welded staircases are also available, to suit any requirement.



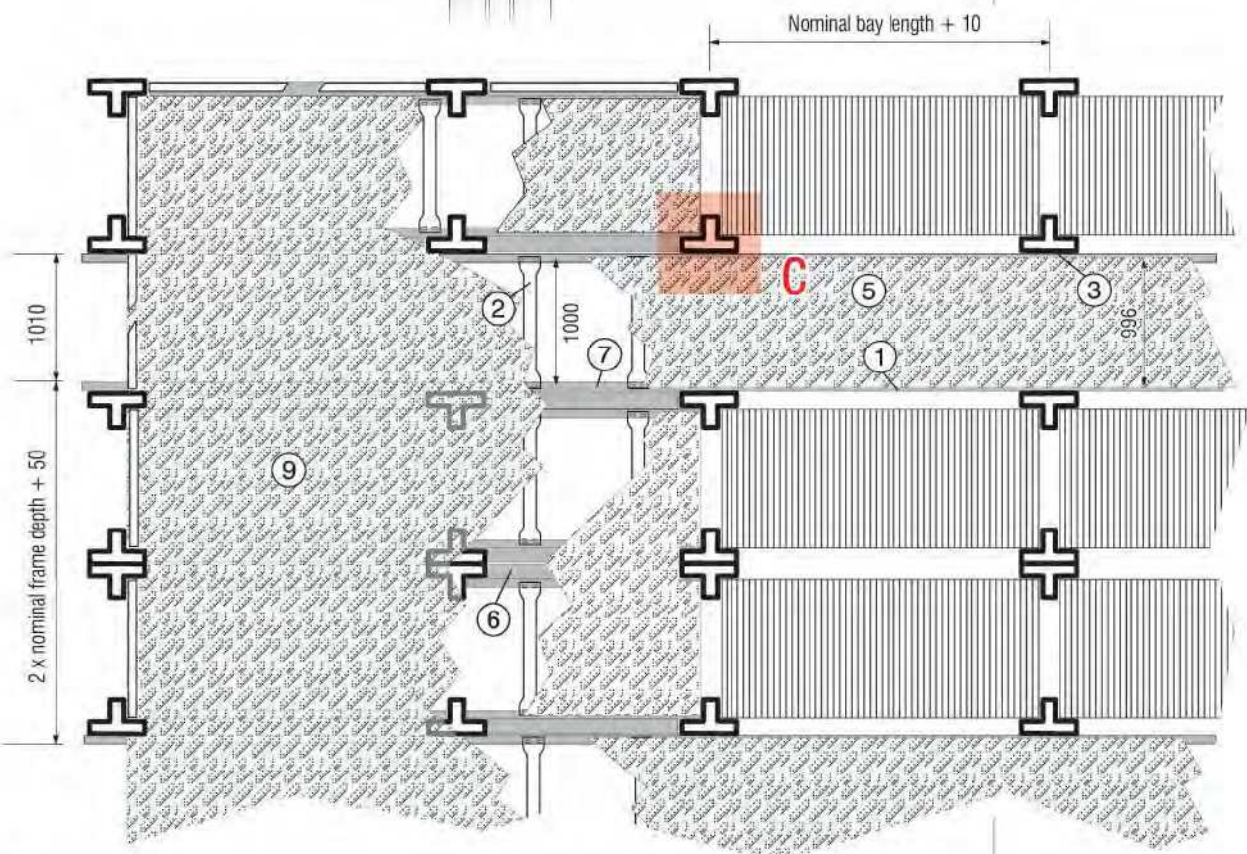
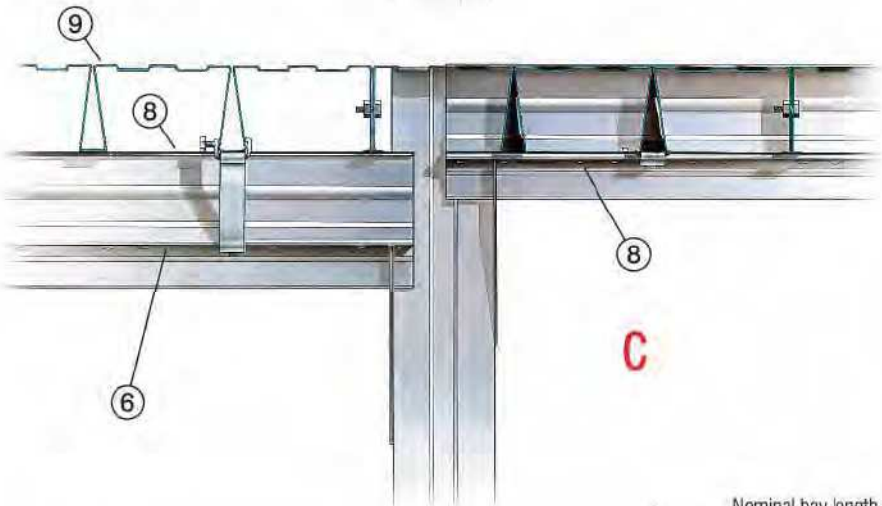
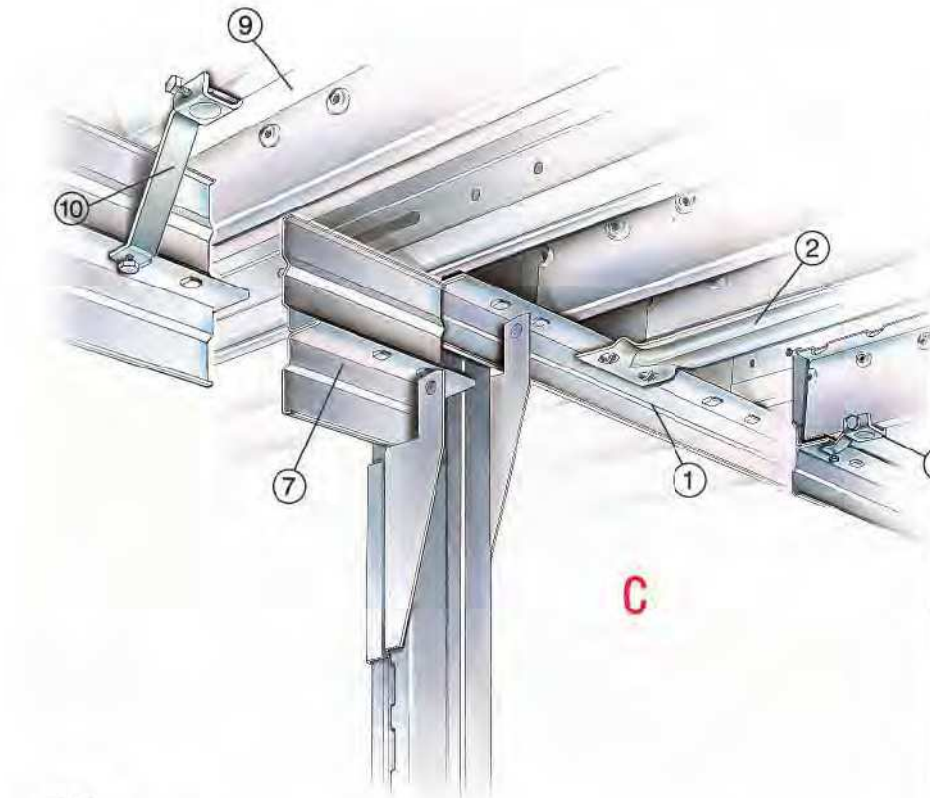


Additional reinforcing profiles must be used either side of the staircase, i.e. for uprights that are not supported by frame bracing.
It is recommended to continue with the regular frame bracing pattern within the frames, as soon as possible.



CONFIGURATION ...where intersecting aisles meet with continuous steel decking.

ID	Article nr.	Description
1.	67015	T-section support bar H58 - walkway
2.	99044	Spacer bar - special length L=length of walkway - 10 mm
3.	SLACC130	Support bracket UNIRACK for T-section support bar
4.	69829+69824+69861	Clamp and bracket for beams up to 20 mm
5.	69707	Steel planks H58 "walkway" L=length of special spacer bar (see ID - nr. 2)
6.	SLACC222 SLACC224 SLACC226	T-section support bar H58 "inner frames" in double-version (see sketch at left)
7.	67015	T-section support bar H58 "walkway" in double-version (see sketch at left)
8.	67021	Noise dampening strip
9.	69701	Steel planks H58 - continuous steel decking
10.	69829+69824+69863	Clamp and bracket for beams up to 60 mm



Steel planking

"T"- section support bars H58 can be used as support beams for the steel planking (Ref.52).

Floors of any dimension can be built in conjunction with "H" joints and "U" section channels. They are used as end and middle joints (Ref.53).

The "T"-section supports are fitted back-to-back. One is fitted on the outside of the uprights by means of support brackets, and the other is fitted inside and onto the upright.

The steel planks are laid over the top and are fixed down by means of the special clamp (Ref.51/54).

The joining piece (art.nr.69813) with two 6x35 mm bolts (art.nr.69816) is used to connect the planks in a longitudinal direction.

When joining the planks in a transverse direction, the 6x20 mm bolts should be used in the appropriate holes.

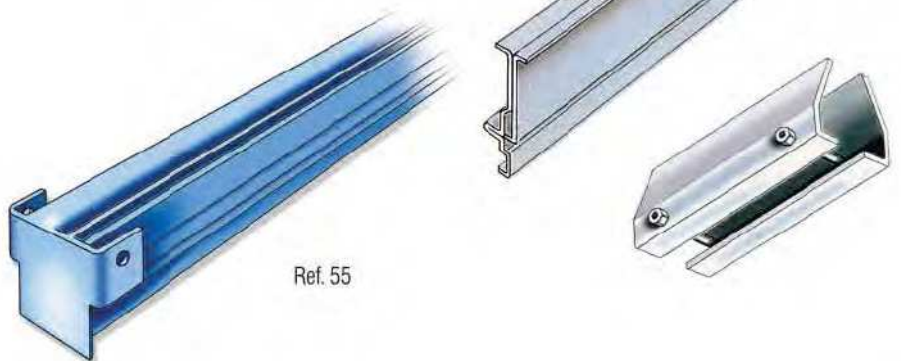


The 70-mm-section walkway beam (Art. 99253B) provides an alternative solution to the use of the "T"-section support bars. It enables the steel planks to be laid in length direction along the walkways (Ref. 55).

Ordering dimension is the clear span of the walkway -10mm.

ACCESSORIES FOR STEEL PLANKING

For beams up to 60 mm in height	Component
Bracket & bolt 8mm for clamps 20/40/60 mm	69829+69824
Clamp for beams up to 20 mm + bolt 8 mm	69861
Clamp for beams up to 40 mm + bolt 8 mm	69862
Clamp for beams up to 60 mm + bolt 8 mm	69863
Longitudinal connection	Component
Joint for longitudinal connection (single item)	69813
Bolt & nut 6x35	69816
Joint for traverse direction bolt & nut 6x20	69825



Mobile Shelving

UNIRACK shelving series are highly suited to achieve modular and cost effective mobile shelving applications as shown in the pictures on this page and on page 6.

For the design and ordering of mobile shelving installations please refer to the MOBIBASIC Technical Manual <MT16>.

Sliding doors are ideal for areas with limited corridor width and can be used to create closed spaces or cupboards.



They are lockable and available for both static or mobile shelving installations in 900-1200-1500 mm standard bays at heights of 2000 or 2500 mm. See page 39.

Mobile Ladders

Mobile Ladders are available in 2000 mm (5 step), 2500 mm (7 step) and 3000 mm (9 step) height and can be supplied with guide rail and curves to adapt them to any environment (Ref. 56).



Ref. 56

METALSISTEM



FEM section X



U N I R A C K



MODULAR STEEL STORAGE SYSTEMS



REGALSISTEM s.r.o.
Soblahovská 7040
911 01 Trenčín

Telefón: +421 32 7440328
E-mail: regalsistem@regalsistem.sk

NR. EDIZIONE 03 | DATA EDIZIONE 04/2005 | NR. REVISIONE 01 | DATA REVISIONE 10/2010 | DATA STAMPA 11/2010